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ENERGY AND LABOR INTENSITIES PROJECTED TO THE YEAR 2010

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ABSTRACT

Total (direct and indirect) energy and labor intensities have been projected to the year 2000 for a 40-sector economy. Energy intensities were derived by modifying the CONAES results with four possible energy price change scenarios between 1975 and 2010. Labor intensities were projects using data from the CAC model and projected BLS matrices to approximate the effect of a doubling of energy prices between 1975 and 2010. As an illustrative example, the projected data were used to determine the net energy and employment impacts of the National Energy Plan on residential energy use to the year 2000.

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INTRODUCTION

This report documents the model, assumptions, and data used in generating a set of energy intensities to the year 2010. The assumptions and data used for producing the energy intensities draw to some extent from OUTLOOK FOR ENERGY DEMAND AND CONSERVATION, the report of the CONAES Panel on Demand and Conservation.

When using the projected energy intensities, several things should be kept in mind. First, the intensities presented are those which would exist in a possible future state of the economy. Four possible future states of the economy are considered, with a resulting set of intensities for each. Although four scenarios are considered, no claim is made that any one of these will be the actual condition of the economy in the year 2010. Second, as the projection horizon increases, the accuracy of the more distant projections tends to decrease. And, third, some of the technological changes specified in a future state of the economy are based on judgmental decisions by industry experts.

1.0 THE MODEL

Energy production and consumption in the economic system is described by a 20-sector linear structural model. The system is subdivided into 40 sectors, listed in Table 1. The first 12 sectors are engaged in energy resource extraction, processing and conversion. The next 8 are ficticious "energy service" sectors representing the end uses or purposes for which fuels and electricity are used. The last 20 sectors are those which consume energy services to produce non-energy goods and services.

Table 1. Sector Definitions

40-Order Sector Number and Title	CAC I/O Code	BEA I/O Code	Title
1 Coal Mining	1	7	Coal Mining
2 Crude Petroleum and Natural Gas	2	8	Crude Petroleum and Natural Gas
3 Shale Oil	-	-	-
4 Coal Gasification		-	-
5 Coal Liquification		-	-
6 Refined Petroleum Products	3	31.01	Refined Petroleum
7 Natural Gas Utilities	5	68.02	Natural Gas Utilities
8 Coal Combined Cycle Electric			
9 Fossil Electric Utilities			
10 Light Water Reactor	4	68.01	Electric Utilities
11 High-temp Gas Reactor			
12 Renewable Electric Utilities			
13 Ore-reduction Feedstocks	-	-	-
14 Chemical Feedstocks	-	-	-
15 Motive Power	-	-	-
16 Misc. Thermal Uses	-	-	-
17 Water Heat	-	-	-
18 Space Heat	-	-	-
19 Air-conditioning	-	-	-
20 Misc. Electric Power Uses	-	-	-

Table 1. Sector Definitions (Continued)

40-Order Sector Number and Title	CAC I/O Code	BEA I/O Code	Title
21 Agriculture	6	1	Livestock and Livestock Products
	7	2	Other Agricultural Products
	8	3	Forestry and Fishery Products
	9	4	Agricultural, Forestry and Fishery Serv.
22 Mining	10	5	Iron and Ferro Alloy Ores Mining
	11	6	Non-Ferrous Metal Ores Mining
	12	9	Stone and Clay Mining and Quarrying
	13	10	Chemicals and Fertilizer Mineral Mining
23 Construction	14	11	New Construction
	15	12	Maintenance and Repair Construction
24 Food	17	14	Food and Kindred Products
25 Paper	27	24	Paper and Allied Products except Containers and Boxes
	28	25	Paperboard Containers and Boxes
	29	26	Printing and Publishing
26 Chemicals	30	27	Chemicals and Selected Chemical Products
	31	28	Plastics and Synthetic Materials
	32	29	Drugs, Cleaning and Toilet Preparations
	33	30	Paints and Allied Products
	34	31.02	Paving Mixtures and Blocks
	35	31.03	Asphalt Felts and Coatings
	36	32	Rubber and Misc. Plastics Products
27 Glass Products	39	35	Glass and Glass Products
28 Stone and Clay Products	40	36	Stone and Clay Products
29 Iron and Steel	41	37	Primary and Steel Manufacturing
30 Nonferrous Metals	42	38	Primary Nonferrous Metals Manufacturing

Table 1. Sector Definitions (Continued)

40-Order Sector Number and Title	CAC I/O Code	BEA I/O Code	Title
31 Intermediate Goods	16	13	Ordnance and Accessories
	19	16	Broad and Narrow Fabrics, Yarn and Thread Mills
	23	20	Lumber and Wood Products, Except Containers
	24	21	Wooden Containers
	26	23	Other Furniture and Fixtures
	37	33	Leather Tanning and Industrial Leather Products
	43	39	Metal Containers
	44	40	Heating, Plumbing, and Fabricated Structural Metal Products
	45	41	Screw Machine Products, Bolts, Nuts, etc. and Metal Stampings
	46	42	Other Fabricated Metal Products
	47	43	Engines and Turbines
	48	44	Farm Machinery
	49	45	Construction, Mining, Oil Field Machinery, Equipment
	50	46	Materials Handling Machinery and Equipment
	51	47	Metalworking Machinery and Equipment
	52	48	Special Industry Machinery and Equipment
	53	49	General Industrial Machinery and Equipment
	54	50	Machine Shop Products
	55	51	Office Computing and Accounting Machines
	56	52	Service Industry Machines
	57	53	Elec. Transmission and Dist. Equip. and Elec. Indus. Apparatus
	59	55	Electric Lighting and Wiring Equipment
	60	56	Radio, Television and Communication Equipment
	61	57	Electronic Components and Accessories
	62	58	Misc. Elec. Machinery, Equipment and Supplies
	64	60	Aircraft and Parts
	65	61	Other Transportation Equipment, not including Motor Vehicles
	66	62	Professional, Scientific and Controlling Instruments & Supplies
	67	63	Optical, Ophthalmic and Photographic Equipment and Supplies
32 Railroad Transport	69	65.01	Railroads and Related Services
33 Bus Transport	70	65.02	Local, Suburban, & Interurban Highway Passenger Transport

Table 1. Sector Definitions (Continued)

40-Order Sector Number and Title	CAC I/O Code	BEA I/O Code	Title
34 Truck Transport	71	65.03	Motor Freight Transportation and Warehousing
35 Water Transport	72	65.04	Water Transportation
36 Air Transport	73	65.05	Air Transportation
37 Trade	79	69	Wholesale and Retail Trade
38 Services	74	65.06	Pipeline Transportation
	75	65.07	Transportation Services
	76	66	Communications except Radio and Television Broadcasting
	77	67	Radio and TV Broadcasting
	78	68.03	Water and Sanitary Services
	80	70	Finance and Insurance
	81	71	Real Estate and Rental
	82	72	Hotels and Lodging; Pers. & Repair Serv. except Auto Repair
	83	73	Business Services
	84	75	Automobile Repair and Services
	85	76	Amusements
	86	77	Medical, Educational Service, and Non-profit Organizations
	87	78	Federal Government Enterprises
	88	79	State and Local Government Enterprises
	89	81	Business Travel, Entertainment and Gifts
	90	82	Office Supplies
39 Motor Vehicles and Equipment	63	59	Motor Vehicles and Equipment
40 Consumer Goods	18	15	Tobacco Manufactures
	20	17	Miscellaneous Textile Goods and Floor Coverings
	21	18	Apparel
	22	19	Miscellaneous Fabricated Textile Products
	25	22	Household Furniture
	38	34	Footwear and Other Leather Products
	58	54	Household Appliances
	68	64	Miscellaneous Manufacturing

The model represents the production technologies for each of these sectors in terms of 40 coefficients; together they comprise a 40 x 40 matrix of input-output coefficients. A typical element A_{ij} represents the amount of input from sector i needed directly by sector j to produce one unit of output. This matrix defines the *technology* of producing goods and services. It alone is sufficient to define the energy intensity of each sector's outputs, as described in the next subsection. When these energy intensities are multiplied by the total quantity of goods and services supplied to consumers, investors, and government, we will obtain the total energy demand for the system.

1.1 Energy Cost of Goods and Services

Consider a typical sector j producing a total output X_j. If we denote the energy intensity of that sector's output by ε_j Btu/unit output, then the total energy embodied in that output is $\varepsilon_j X_j$. Since the technology of sector j's production process is characterized by the j^{th} column of the matrix A, we can construct the energy balance diagram shown in fig. 1. The diagram states simply that the energy embodied in the inputs from each sector i ($\varepsilon_i A_{ij} X_j$) plus the energy extracted from the earth ($E_j \neq 0$ if j is primary energy sector), equals the energy embodied in more detail by Bullard and Herendeen (1975), results in the following energy balance equation in matrix notation:

$$\underline{\varepsilon}\,\underline{\underline{A}}\,\underline{\underline{X}} + \underline{E} = \underline{\varepsilon}\,\hat{\underline{\underline{X}}} \qquad (1\text{-}1)$$

where $\underline{\underline{X}}$ is a diagonalized matrix of sector outputs.

Solving for the energy intensities we obtain

$$\underline{\varepsilon} = \underline{e}(\underline{\underline{I}}-\underline{\underline{A}})^{-1} \qquad (1\text{-}2)$$

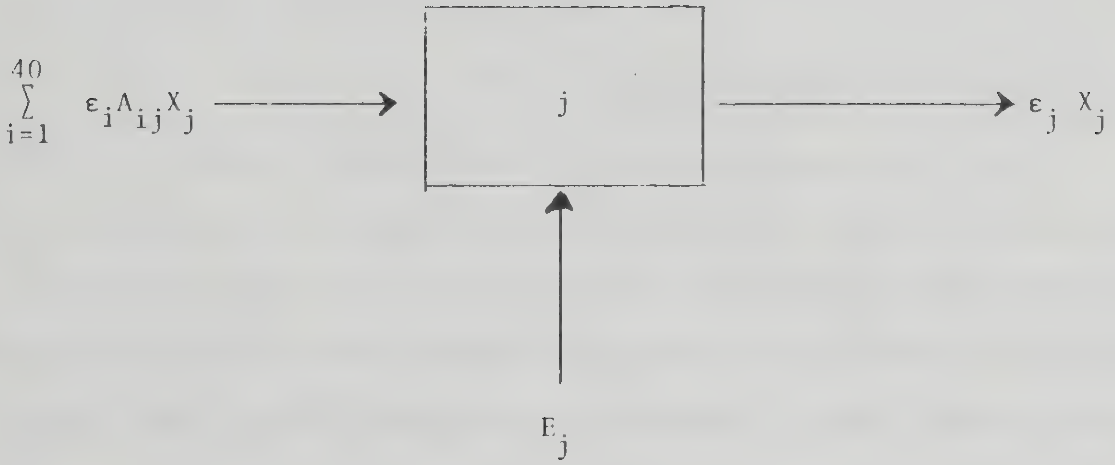

Figure 1. Energy Balance for a Typical Sector

where $\underline{e}$ is a unit vector that defines the energy sector row of $(\underline{\underline{I}}-\underline{\underline{A}})^{-1}$ as the energy cost of goods and services.*

The above analysis can be repeated for each of the primary energy sectors resulting in a matrix $\underline{\underline{\varepsilon}}$ whose elements can be summed columnwise to define a "total primary" energy intensity for each sector's output. Primary electric intensities such as hydro and nuclear are converted to fossil fuel equivalents consistent with the Bureau of Mines convention.

1.2 The Technology Specification

The U.S. Department of Commerce assembles data for models such as this one at irregular intervals, the latest being for 1967.** For energy analysis, this data has been assembled together with specific data on new energy technologies by Bullard and Sebald (1975 a,b) in a way that highlights the end uses of energy as defined by the ficticious "energy service" sectors (13-20 in Table 1). Among the reasons for supplementing the Commerce Department data are:

1) to express energy use in physical, rather than monetary units to account for the fact that energy is sold to different users at different prices.

2) to express industrial energy requirements in terms of functional end uses so technological changes can be specified explicitly.

The result is a 40 x 40 matrix whose elements are expressed in the units shown in fig. 2. Nonenergy sector outputs are expressed in terms of constant (1967) dollars because they are too aggregated to be characterized by a single physical unit of measure.

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* The unit vector is obtained as the product $\underline{E}\,\hat{\underline{\underline{X}}}^{-1}$ because the output of an energy supply sector is defined as the amount extracted from the earth.

** See U.S. Department of Commerce (1974)

	Supply	Service	Non-energy
Energy Supply	$\frac{\text{Btu}}{\text{Btu}}$	$\frac{\text{Btu}}{\text{Btu}}$	0
Energy Service	$\frac{\text{Btu}}{\text{Btu}}$	0	$\frac{\text{Btu}}{\$}$
NON-energy	$\frac{\$}{\text{Btu}}$	0	$\frac{\$}{-\$}$

Figure 2. Units of Measure for Input-Output Coefficients

Note that the ficticious energy service sectors are defined in such a way that several sections of the A matrix are zero. In this model, the energy supply sectors provide all their output to the energy service sectors which in turn "provide" space heat, process heat, etc. to the producing sectors of the economy. This representation facilitates specifications of a technological change that is specific to a particular end use (e.g., building insulation would affect space heating and air conditioning demands). Also, fuel substitution changes are restricted to the 12 x 20 upper left submatrix.

1.3 Identification of Important Technological Coefficients

All elements in the 40 x 40 A matrix are subject to change between 1967 and 2010 as production technologies change in each sector. Specifying all such changes is a formidable task. To focus efforts on the most important parameters, "energy input fractions" were computed for each sector and rank-ordered. These fractions g_{ij} represent the fraction of the total energy intensity of product j embodied in its direct inputs from sector i. It is easily seen from fig. 1 that the energy input fractions are given by

$$g_{ij} = \frac{\varepsilon_i}{\varepsilon_j} A_{ij} \qquad (1\text{-}3)$$

These fractions were computed for the base year and were useful in identifying those aspects of a production technology most important with respect to energy demand. For example, it shows that only 10% of the energy cost of a car is due to the fuels and electricity consumed by the auto maker, while over a third is due to the steel used. So for specifying auto production technologies in 2010 it is more important to accurately describe the size and weight of the car than the degree of mechanization of the assembly line.

Section 2 describes which and by how much the most important elements of the A matrix will be changed.

1.4 Four Scenarios

Energy intensities were projected to the year 2010 under four scenarios corresponding roughly to real energy price levels (4, 2, 1, 0.5) times the 1975 level. (The CONAES study presents the actual price levels in more detail.) For the remainder of this report the scenarios will be referred to as (A, B, C, D) respectively.

Section 2 describes the changes in production technologies by means of multiplicative factors to be applied to the important elements of the A matrix. There is a different set of multiplicative factors for each of the four scenarios. In Section 3, the energy coefficients under each of the four scenarios are found.

2.0 PRODUCTION TECHNOLOGIES

The technology of producing any type of good or service is defined by specifying the inputs required directly to produce one unit of the product. The inputs are of two types, energy and non-energy goods and services. Energy can be conserved by two types of technological change;

direct energy inputs can be reduced, or substitutions can be made among non-energy inputs to reduce the overall energy intensity of the product. Both types are described below for each producing sector of the economy.

2.1 Energy Production and Processing Sectors

These sectors (1-12 in Table 1) are engaged in the extraction of primary energy resources and processing them into forms required by end-use devices (e.g. methane, gasoline, electricity). The technologies described in the model are derived from historical data for the base year 1967 and updated to include new processes and technologies as described by Just (1974).* Of the technologies already in existence in the base year, only changes in petroleum extraction and refining processes could account for enough energy impact to warrant updating. The industry research group of the CONAES panel indicates that the direct energy efficiency of petroleum refining improved for each of the scenarios, while the energy required for extraction increased.

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*Detailed descriptions of the derivation of technological coefficients are given in Knecht and Bullard (1975).

2.2 Industrial - Direct Energy Use

In all 40 sectors, the base year values for feedstock inputs are unchanged except in two sectors: construction and chemicals. From the Industry Resource Group report we obtained the following factors to apply to the base year input levels from the ore reduction and petrochemical feedstock sectors.

	SCENARIO			
Sector	A	B	C	D
23 Construction	0.58	.70	.80	.88
26 Chemicals	1.12	1.13	1.13	1.13

Table 2. Fractional Changes in Industrial Use of Feedstocks For the Year 2010 (1967 = 1.00)

For process heat energy, the base year inputs of coal, refined oil and natural gas are multiplied by the factors shown in Table 3 for all scenarios. These were obtained by detailed comparisons of fuel used per physical unit of output in the year 1967 and the 2010 projections. This represents a situation where industries minimize purchases of utility electricity, effectively maximizing coal-fired cogeneration.

The energy savings due to cogeneration are not included in those figures, however; an overall adjustment is made to the industrial sector's total coal use after all calculations have been performed.*

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*See Report of the CONAES Panel on Demand & Conservation, Chapter VII.

Table 3a. Fractional Changes in Direct Energy Use per Unit Production for the Year 2010, Scenario A (1967 = 1.00)

	COAL	OIL	GAS	ELECTRICITY
Agriculture	1.00	.78	1.74	1.51
Mining	1.00	1.00	1.00	1.00
Construction	1.00	1.00	1.00	1.00
Food	.40	.54	.35	.86
Paper	1.06	.39	.15	.31
Chemicals	1.76	1.82	.04	.34
Glass	2.31	2.80	.29	.89
Cement & Stone	1.04	.79	.48	.92
Iron & Steel	.89	.31	.08	.31
NonFerrous Metals	5.45	.26	.25	.44
Intermediate Goods, Consumer Goods	1.51	.25	.33	1.20

Table 3b. Fractional Changes in Direct Energy Use per Unit Production for the Year 2010, Scenario B (1967 = 1.00)

	COAL	OIL	GAS	ELECTRICITY
Agriculture	1.00	1.00	1.74	1.97
Mining	1.00	1.00	1.00	1.00
Construction	1.00	1.00	1.00	1.00
Food	.47	1.22	.35	.99
Paper	1.22	.44	.16	.41
Chemicals	1.99	1.65	.03	.38
Glass	2.32	3.64	.29	.90
Cement & Stone	1.04	1.05	.07	1.10
Iron & Steel	.91	.80	.10	.34
NonFerrous Metals	6.41	.37	.29	.59
Intermediate Goods, Consumer Goods	2.30	.37	.33	1.43

Table 3c. Fractional Changes in Direct Energy Use per Unit Production for the Year 2010, Scenario C (1967 = 1.00)

	COAL	OIL	GAS	ELECTRICITY
Agriculture	1.00	.62	2.92	8.29
Mining	1.00	1.00	1.00	1.00
Construction	1.00	1.00	1.00	1.00
Food	.20	.77	.64	2.99
Paper	.31	.70	.44	.69
Chemicals	.54	3.47	.72	.92
Glass	0	.84	.60	1.36
Cement & Stone	1.08	1.30	.12	1.66
Iron & Steel	.70	.71	.43	.92
NonFerrous Metals	.51	.38	1.08	1.63
Intermediate Goods, Consumer Goods	.62	.50	1.01	1.97

Table 3d. Fractional Changes in Direct Energy Use per Unit Production for the Year 2010, Scenario D (1967 = 1.00)

	COAL	OIL	GAS	ELECTRICITY
Agriculture	1.00	.61	3.26	9.05
Mining	1.00	1.00	1.00	1.00
Construction	1.00	1.00	1.00	1.00
Food	.20	.81	.77	3.16
Paper	.33	.72	.47	.76
Chemicals	.28	3.95	.78	.97
Glass	0	.84	.62	1.36
Cement & Stone	1.18	2.08	.17	1.66
Iron & Steel	.73	.71	.46	.98
NonFerrous Metals	.56	6.00	1.02	1.84
Intermediate Goods, Consumer Goods	.68	.55	1.10	2.16

Changes in the technology of transport vehicles engines affect energy requirements per vehicle-mile for all modes. The number of passenger-miles or ton-miles per vehicle-mile depends on load factor. Both types of changes combine multiplicatively to determine the change in motor fuel inputs per unit output.

In the non-transportation sectors, most motor fuel use is for trucking. The relative efficiency factors for trucks determined by the Transportation Resource Group were (.683, .728, .799, .837) for vehicle energy intensities, and (.833, .938, 1.071, 1.250) for load factor changes. The net effects are therefore (.569, .683, .834, .1046) for motive power used in non-transportation sectors and in the trucking sector.

For bus transportation, we assume the same vehicle efficiency changes as for trucks, and the following changes due to load factor improvements (.50, .60, .75, 1.00).* The net change factors are therefore (.342, .437, .584, .837).

For rail transport, braking system improvements are assumed to yield 40% energy savings directly. No freight load factor changes are assumed and passenger transit is ignored in all scenarios.

For air transport, the vehicle energy intensity factors are (.661, .694, .728, .768) and the effects due to load factor are (.741, .820, .917, 1.042) for a total change of (.490, .569, .668, .800).

For water transport, the same vehicle efficiency changes are assumed as for trucks and buses, and load factors remain unchanged.

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*Friedland (1976) supplied information for extending the Transportation Resource Group results to buses and barges, and for interpolating between the TRG high and low scenarios.

2.3 Industrial: Non-Energy Inputs

Changes in energy prices will be reflected through the energy intensities of all inputs to production processes. The following changes were assumed for each of the sectors under the four scenarios.

2.3.1 Food.

Nonenergy inputs to the food processing industry accounted for 31% of the energy cost of food in the base year. The largest items were packaging materials (over 15%). For Scenario A the base year amounts of all types of packaging inputs were reduced by 25% (paper, plastic, glass, and cans*) and half of the plastic was replaced by paper. For Scenario D, inputs of plastic increased 50% while all other packaging inputs were increased 10%; this reflects an overall increase in food packaging under conditions of lower energy prices. Other scenarios are characterized by linear interpolation of nonenergy input coefficients.

2.3.2 Auto manufacturing.

The largest nonenergy inputs to this sector were, not surprisingly, in the form of steel and other manufactured goods. In fact, nonenergy inputs account for 90% of the total energy cost of a car. To reflect the fact that cars may be lighter (fiberglass and aluminum substituted for steel) and smaller overall in Scenario A, the following changes were made. At the expense of steel, inputs of chemical products and nonferrous metals were doubled, while all other nonenergy inputs were scaled down 20%. For Scenario D the base year mix was retained but all inputs were scaled up 10% to reflect an increase in the average weight of automobiles.

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*Virtually all inputs of "intermediate goods" are metal containers.

2.3.3 Consumer goods. The output of this sector makes up the majority of durable and nondurable goods consumed by individuals. It includes clothing, furniture, appliances, etc. To assess possible changes in production technology in this sector, the following exercise was performed. Consider the average household and imagine a tabulation of all materials purchased by the occupants during a year. The exact types of goods (e.g., picture frames, lamps, etc.) are not important. Imagine that all items were disassembled and the parts sorted into five piles: paper (including packaging), plastic and synthetic fabrics, metal, wood, and natural fibers (cotton and wool). If energy prices change dramatically, the relative sizes of these piles might also be expected to change because the producers of consumer goods would have substituted among these materials in their production processes. For example, a substantial rise in energy prices would result in more wood and less metal, since metal is much more energy intensive and would become more expensive and less competitive with wood. Similarly, wool suits might become less expensive than polyester and capture a larger share of the market. Moreover, the amount of packaging may be reduced as salespersons, not energy-intensive plastic bubble-paks, do more of the selling.

The factors by which base year input coefficients were multiplied for each of the scenarios are summarized below. They reflect the following assumptions on changes from the base-year mix of inputs.

Scenario A: Inputs of paper, plastics and chemical products, and metals were reduced 20%, while agricultural inputs (cotton and wood) were increased 20%

Scenario B,C: Linear interpolation between A and D (i.e., the percentage input reductions were plotted against price for the A and D scenarios. The B and C scenarios were assumed to lie on a stratight line between A and D).

Scenario D: Inputs of paper, plastics, chemical products and paper were increased 10% while agricultural inputs were decreased 10%.

2.3.4 Intermediate goods. This sector includes mostly goods purchased by industries rather than consumers. But since some of those goods end up in consumer goods, a few adjustments are in order here. Inputs of wood and cotton (agricultural products) were doubled for Scenario A over the base year value to reflect substitution of less energy-intensive inputs to production of clothing and furniture. These would probably substitute directly for plastics, but plastics in turn would substitute for heavier metals in some energy-consuming machinery. Therefore, agricultural inputs were increased at the expense of primary metal inputs. For Scenario D, agricultural inputs were reduced 50% and metals were increased on a dollar-for-dollar basis.

2.3.5 Transportation. For the rail, air, bus and truck transportation sectors we make the assumption that all nonenergy inputs are proportional to vehicle-miles travelled, rather than passenger-miles or ton-miles. Therefore all inputs are scaled by the load factor effects given in Section 2.2.

3.0 PROJECTED ENERGY INTENSITIES

The technological changes discussed in Section 2 are multiplicative factors which must be applied to the 1967 A matrix. These factors are represented by the matrix F_A. Since there are four scenarios, representing four different sets of technological changes, there are four F_A matrices (F_{AA}, F_{AB}, F_{AC}, F_{AD}). (See Appendix A.)

To produce a new A matrix ($A_{FA}, A_{FB}, A_{FC}, A_{FD}$) which reflects a particular set of technological changes, the a_{ij} element of the 1967 A matrix is multiplied by the f_{aij} element of the multiplicative factor matrix.

$$a_{fx_{ij}} = f_{ax_{ij}} \cdot a_{ij}$$

(The results of these multiplications are in Appendix B.)

Once this set of new A matrices ($A_{FA}, A_{FB}, A_{FC}, A_{FD}$) has been found equation 1-2 is applied to them one at a time. The result is a set of four energy intensity vectors for the year 2010 (Table 4). The energy intensities for the period from 1967 to 2010 were interpolated from the 1967 energy intensities and the projected 2010 energy intensities. We are currently proposing to the U.S. Energy Information Administration to enable us to calculate the detailed 1972 energy intensities. Energy intensities under the four scenarios are given for five year intervals in Table 5. The intensities for sectors 1-20 are in units of B.T.U. per B.T.U. The intensities for sectors 20-40 are in units of million B.T.U.'s per 1967 dollar.

The energy intensity for personal consumption expenditures was found by first taking a vector of the projected personal consumption expenditures in the year 2010 under each scenario and with a 1967 PCE vector extrapolating with respect to time to obtain PCE vectors for the intervening years. For each of these vectors, the appropriate year's energy intensities were applied. The results of these multiplications were then added to get a total for the energy consumed due to PCE for a particular year. This calculation may be expressed as follows:

$$E_{TOT_Y} = \sum_{i=1}^{40} \varepsilon_{i_Y} \ PCE_{i_Y}$$

where ε_{i_Y} is the energy intensity for the ith sector in the year Y, Note, for the preceding calculation the energy sectors (1-20) of PCE are specified in Btu's. At this point appropriate price factors had to be applied to the sectors of PCE so as to get them in units of dollars. The PCE vector was then summed to produce PCE_{TOT_Y} to get the energy intensity of PCE, E_{TOT_Y} is divided by PCE_{TOT_Y}

$$\varepsilon_{PCE_Y} \quad \frac{E_{TOT_Y}}{PCE_{TOT_Y}} \quad .$$

As mentioned earlier, this set of calculations was performed for each year under each scenario.

Table 4a. Energy Intensities for 2010 Under Scenario A

(Units: BTU/BTU for sectors 1-20. 10^6/BTU \$67 for sectors 21-40.)

	Sector	Energy Intensity
1	COAL MINING	1.00512
2	CRUDE PETROLEUM, GAS	1.11090
3	SHALE OIL	1.51344
4	GASIFIED COAL	1.68266
5	SOLVENT-REFINED COAL	1.83654
6	REF'D PETROLEUM PRODUCTS	1.25468
7	NATURAL GAS UTILITIES	1.15380
8	COAL COMBINED CYCLE ELEC.	2.56115
9	FOSSIL ELECTRIC UTILITIES	3.06404
10	NUCLEAR ELEC. UTILITES	3.70929
11	HIGH-TEMP HAS REACTOR	3.73692
12	RENEWABLE ELEC. UTIL'S	3.62227
13	ORE-REDUCTION FEEDSTOCKS	1.50017
14	CHEMICAL FEEDSTOCKS	1.23410
15	MOTIVE POWER	6.27336
16	MISC. THERMAL USES	1.78061
17	WATER HEAT	2.11291
18	SPACE HEAT	1.62294
19	AIR-CONDITIONINS	1.19105
20	MISC. ELEC. POWER USES	3.16992
21	AGRICULTURE	0.05096
22	MINING	0.10576
23	CONSTRUCTION	0.03852
24	FOOD	0.03635
25	PAPER	0.03858
26	CHEMICALS	0.10545
27	GLASS AND GLASS PROD'S	0.07060
28	STONE AND CLAY PROD'S	0.08915
29	PRIM. IRON AND STEEL	0.14022
30	PRIM. NONFERROUS METAL	0.09280
31	INDUSTRIAL EQUIP.	0.04052
32	RAILROADS	0.06457
33	HIGHWAY PASS. TRANS.	0.03406
34	MOTOR FREIGHT TRANS.	0.02666
35	WATER TRANSPORTATION	0.21958
36	AIR TRANSPORTATION	0.08610
37	TRADE	0.01682
38	SERVICES	0.01662
39	MOTOR VEHICLES AND EQUIP.	0.05043
40	CONSUMER GOODS	0.03003

Table 4b Energy Intensities for 2010 Under Scenario B

(Units: BTU/BTU for sectors 1-20. 10^6/BTU $67 for sectors 21-40)

Sector	Energy Intensity
1 COAL MINING	1.00545
2 CRUDE PETROLEUM, GAS	1.11159
3 SHALE OIL	1.51967
4 GASIFIED COAL	1.68396
5 SOLVENT-REFINED COAL	1.83829
6 REF'D PETROLEUM PRODUCTS	1.25662
7 NATURAL GAS UTILITIES	1.15480
8 COAL COMBINED CYCLE ELEC.	2.56569
9 FOSSIL ELECTRIC UTILITIES	3.06994
10 NUCLEAR ELEC. UTILITES	3.75751
11 HIGH-TEMP HAS REACTOR	3.74599
12 RENEWABLE ELEC. UTIL'S	3.62519
13 ORE-REDUCTION FEEDSTOCKS	1.50068
14 CHEMICAL FEEDSTOCKS	1.23578
15 MOTIVE POWER	6.28305
16 MISC. THERMAL USES	1.78236
17 WATER HEAT	2.11534
18 SPACE HEAT	1.62378
19 AIR-CONDITIONINS	1.19302
20 MISC. ELEC. POWER USES	3.17529
21 AGRICULTURE	0.06181
22 MINING	0.10809
23 CONSTRUCTION	0.04416
24 FOOD	0.04600
25 PAPER	0.04443
26 CHEMICALS	0.11155
27 GLASS AND GLASS PROD'S	0.07711
28 STONE AND CLAY PROD'S	0.10020
29 PRIM. IRON AND STEEL	0.15112
30 PRIM. NONFERROUS METAL	0.11037
31 INDUSTRIAL EQUIP.	0.04752
32 RAILROADS	0.07325
33 HIGHWAY PASS. TRANS.	0.03971
34 MOTOR FREIGHT TRANS.	0.03703
35 WATER TRANSPORTATION	0.22294
36 AIR TRANSPORTATION	0.09333
37 TRADE	0.02372
38 SERVICES	0.02110
39 MOTOR VEHICLES AND EQUIP.	0.05760
40 CONSUMER GOODS	0.03639

Table 4c. Energy Intensities for 2010 Under Scenario C

(Units: BTU/BTU for sectors 1-20. 10^6/BTU $67 for sectors 21-40)

Sector	Energy Intensity
1 COAL MINING	1.00573
2 CRUDE PETROLEUM, GAS	1.11211
3 SHALE OIL	1.51988
4 GASIFIED COAL	1.68494
5 SOLVENT-REFINED COAL	1.83970
6 REF'D PETROLEUM PRODUCTS	1.25810
7 NATURAL GAS UTILITIES	1.15554
8 COAL COMBINED CYCLE ELEC.	2.56920
9 FOSSIL ELECTRIC UTILITIES	3.07413
10 NUCLEAR ELEC. UTILITES	3.72540
11 HIGH-TEMP HAS REACTOR	3.75477
12 RENEWABLE ELEC. UTIL'S	3.62742
13 ORE-REDUCTION FEEDSTOCKS	1.50110
14 CHEMICAL FEEDSTOCKS	1.23706
15 MOTIVE POWER	6.29048
16 MISC. THERMAL USES	1.78366
17 WATER HEAT	2.11712
18 SPACE HEAT	1.62617
19 AIR-CONDITIONINS	1.19444
20 MISC. ELEC. POWER USES	3.17915
21 AGRICULTURE	0.06938
22 MINING	0.11022
23 CONSTRUCTION	0.04980
24 FOOD	0.05402
25 PAPER	0.05039
26 CHEMICALS	0.11830
27 GLASS AND GLASS PROD'S	0.08555
28 STONE AND CLAY PROD'S	0.12096
29 PRIM. IRON AND STEEL	0.16032
30 PRIM. NONFERROUS METAL	0.13712
31 INDUSTRIAL EQUIP.	0.05415
32 RAILROADS	0.07858
33 HIGHWAY PASS. TRANS.	0.04816
34 MOTOR FREIGHT TRANS.	0.04237
35 WATER TRANSPORTATION	0.22569
36 AIR TRANSPORTATION	0.10427
37 TRADE	0.02704
38 SERVICES	0.02356
39 MOTOR VEHICLES AND EQUIP.	0.06437
40 CONSUMER GOODS	0.04229

Table 4d. Energy Intensities for 2010 Under Scenario D

(Units: BTU/BTU for sectors 1-20. 10^6/BTU \$67 for sectors 21-40)

	Sector	Energy Intensity
1	COAL MINING	1.00595
2	CRUDE PETROLEUM, GAS	1.11260
3	SHALE OIL	1.52003
4	GASIFIED COAL	1.68583
5	SOLVENT-REFINED COAL	1.84093
6	REF'D PETROLEUM PRODUCTS	1.25951
7	NATURAL GAS UTILITIES	1.15626
8	COAL COMBINED CYCLE ELEC.	2.57217
9	FOSSIL ELECTRIC UTILITIES	3.07749
10	NUCLEAR ELEC. UTILITES	3.73229
11	HIGH-TEMP HAS REACTOR	3.76243
12	RENEWABLE ELEC. UTIL'S	3.62936
13	ORE-REDUCTION FEEDSTOCKS	1.50141
14	CHEMICAL FEEDSTOCKS	1.23828
15	MOTIVE POWER	6.29749
16	MISC. THERMAL USES	1.78490
17	WATER HEAT	2.11872
18	SPACE HEAT	1.62748
19	AIR-CONDITIONINS	1.19559
20	MISC. ELEC. POWER USES	3.18227
21	AGRICULTURE	0.07162
22	MINING	0.11194
23	CONSTRUCTION	0.05444
24	FOOD	0.05981
25	PAPER	0.05504
26	CHEMICALS	0.12423
27	GLASS AND GLASS PROD'S	0.08870
28	STONE AND CLAY PROD'S	0.13998
29	PRIM. IRON AND STEEL	0.16395
30	PRIM. NONFERROUS METAL	0.14251
31	INDUSTRIAL EQUIP.	0.05775
32	RAILROADS	0.08393
33	HIGHWAY PASS. TRANS.	0.06152
34	MOTOR FREIGHT TRANS.	0.04511
35	WATER TRANSPORTATION	0.22779
36	AIR TRANSPORTATION	0.16221
37	TRADE	0.03055
38	SERVICES	0.02678
39	MOTOR VEHICLES AND EQUIP.	0.06735
40	CONSUMER GOODS	0.04623

Table 5a. Projected Energy Intensities in Five Year Intervals under Scenario A.

(Units: BTU/BTU for sectors 1-20. 10^6/BTU $67 for sector 21-40.)

	SECTOR NAME	1970	1975	1980	1985	1990	1995	2000	2005	2010
1	COAL MINING	1.006	1.006	1.006	1.006	1.006	1.006	1.005	1.005	1.005
2	CRUDE PETROLEUM, GAS	1.060	1.067	1.073	1.079	1.086	1.092	1.098	1.105	1.111
3	SHALE OIL	1.520	1.520	1.520	1.520	1.520	1.520	1.520	1.519	1.519
4	GASIFIED COAL	1.687	1.686	1.686	1.685	1.685	1.684	1.684	1.683	1.683
5	SOLVENT-REFINED COAL	1.840	1.840	1.839	1.839	1.838	1.838	1.837	1.837	1.837
6	REF'D PETROLEUM PRODUCTS	1.205	1.211	1.217	1.223	1.230	1.236	1.242	1.248	1.255
7	NATURAL GAS UTILITIES	1.102	1.109	1.115	1.122	1.128	1.135	1.141	1.147	1.154
8	COAL COMBINED CYCLE ELEC.	2.577	2.575	2.573	2.571	2.569	2.567	2.565	2.563	2.561
9	FOSSIL ELECTRIC UTILITIES	3.727	3.644	3.562	3.479	3.396	3.313	3.230	3.147	3.064
10	NUCLEAR ELEC. UTILITES	3.751	3.745	3.740	3.735	3.730	3.725	3.720	3.714	3.709
11	HIGH-TEMP HAS REACTOR	3.783	3.777	3.772	3.766	3.760	3.754	3.748	3.743	3.737
12	RENEWABLE ELEC. UTIL'S	3.633	3.631	3.630	3.629	3.627	3.626	3.625	3.624	3.622
13	ORE-REDUCTION FEEDSTOCKS	1.502	1.502	1.502	1.501	1.501	1.501	1.501	1.500	1.500
14	CHEMICAL FEEDSTOCKS	1.185	1.191	1.197	1.203	1.209	1.216	1.222	1.228	1.234
15	MOTIVE POWER	6.023	6.055	6.086	6.117	6.148	6.180	6.211	6.242	6.273
16	MISC. THERMAL USES	1.725	1.732	1.739	1.746	1.753	1.760	1.767	1.774	1.781
17	WATER HEAT	2.157	2.151	2.146	2.140	2.135	2.129	2.124	2.118	2.113
18	SPACE HEAT	1.572	1.579	1.585	1.591	1.598	1.604	1.610	1.617	1.623
19	AIR-CONDITIONINS	1.382	1.358	1.334	1.310	1.286	1.263	1.239	1.215	1.191
20	MISC. ELEC. POWER USES	3.710	3.643	3.575	3.508	3.440	3.373	3.305	3.237	3.170
21	AGRICULTURE	.057	.056	.055	.054	.054	.053	.052	.052	.051
22	MINING	.118	.117	.115	.114	.112	.110	.109	.107	.106
23	CONSTRUCTION	.054	.052	.050	.048	.046	.044	.043	.041	.039
24	FOOD	.054	.052	.050	.047	.045	.043	.041	.039	.036
25	PAPER	.073	.068	.064	.060	.056	.051	.047	.043	.039
26	CHEMICALS	.142	.138	.133	.128	.124	.119	.115	.110	.105
27	GLASS AND GLASS PROD'S	.114	.109	.103	.098	.092	.087	.081	.076	.071
28	STONE AND CLAY PROD'S	.155	.147	.138	.130	.122	.114	.106	.097	.089
29	PRIM. IRON AND STEEL	.212	.203	.194	.185	.176	.167	.158	.149	.140
30	PRIM. NONFERROUS METAL	.145	.138	.132	.125	.119	.112	.106	.099	.093
31	INDUSTRIAL EQUIP.	.061	.058	.056	.053	.051	.048	.046	.043	.041
32	RAILROADS	.077	.076	.074	.073	.071	.069	.068	.066	.065
33	HIGHWAY PASS. TRANS.	.065	.061	.057	.053	.049	.046	.042	.038	.034
34	MOTOR FREIGHT TRANS.	.044	.042	.040	.038	.035	.033	.031	.029	.027
35	WATER TRANSPORTATION	.221	.221	.221	.221	.220	.220	.220	.220	.220
36	AIR TRANSPORTATION	.184	.172	.160	.147	.135	.123	.111	.098	.086
37	TRADE	.033	.031	.029	.027	.025	.023	.021	.019	.017
38	SERVICES	.031	.029	.027	.025	.024	.022	.020	.018	.017
39	MOTOR VEHICLES AND EQUIP.	.064	.062	.060	.059	.057	.055	.054	.052	.050
40	CONSUMER GOODS	.046	.044	.042	.040	.038	.036	.034	.032	.030
	PERS. CONSUMP. EXPEND.	.090	.080	.072	.066	.060	.055	.049	.045	.041

Table 5b. Projected Energy Intensities in Five Year Intervals under Scenario B.

(Units: BTU/BTU for sectors 1-20. 10^6/BTU \$67 for sector 21-40.)

	SECTOR NAME	1970	1975	1980	1985	1990	1995	2000	2005	2010
1	COAL MINING	1.006	1.006	1.006	1.006	1.006	1.006	1.006	1.006	1.005
2	CRUDE PETROLEUM, GAS	1.060	1.067	1.073	1.080	1.086	1.092	1.099	1.105	1.112
3	SHALE OIL	1.520	1.520	1.520	1.520	1.520	1.520	1.520	1.520	1.520
4	GASIFIED COAL	1.687	1.686	1.686	1.686	1.685	1.685	1.685	1.684	1.684
5	SOLVENT-REFINED COAL	1.840	1.840	1.840	1.840	1.839	1.839	1.839	1.839	1.838
6	REF'D PETROLEUM PRODUCTS	1.205	1.211	1.218	1.224	1.231	1.237	1.244	1.250	1.257
7	NATURAL GAS UTILITIES	1.102	1.109	1.116	1.122	1.129	1.135	1.142	1.148	1.155
8	COAL COMBINED CYCLE ELEC.	2.577	2.576	2.575	2.573	2.572	2.570	2.569	2.567	2.566
9	FOSSIL ELECTRIC UTILITIES	3.728	3.646	3.563	3.481	3.399	3.317	3.234	3.152	3.070
10	NUCLEAR ELEC. UTILITES	3.754	3.754	3.755	3.755	3.756	3.756	3.757	3.757	3.758
11	HIGH-TEMP HAS REACTOR	3.784	3.779	3.774	3.770	3.765	3.760	3.755	3.751	3.746
12	RENEWABLE ELEC. UTIL'S	3.633	3.632	3.631	3.630	3.629	3.628	3.627	3.626	3.625
13	ORE-REDUCTION FEEDSTOCKS	1.502	1.502	1.502	1.502	1.501	1.501	1.501	1.501	1.501
14	CHEMICAL FEEDSTOCKS	1.185	1.191	1.197	1.204	1.210	1.217	1.223	1.229	1.236
15	MOTIVE POWER	6.024	6.056	6.089	6.121	6.154	6.186	6.218	6.251	6.283
16	MISC. THERMAL USES	1.725	1.732	1.739	1.746	1.754	1.761	1.768	1.775	1.782
17	WATER HEAT	2.157	2.152	2.147	2.141	2.136	2.131	2.125	2.121	2.115
18	SPACE HEAT	1.573	1.579	1.586	1.592	1.599	1.605	1.612	1.618	1.625
19	AIR-CONDITIONINS	1.382	1.358	1.335	1.311	1.288	1.264	1.240	1.217	1.193
20	MISC. ELEC. POWER USES	3.711	3.644	3.577	3.510	3.443	3.376	3.309	3.242	3.175
21	AGRICULTURE	.057	.058	.058	.059	.060	.060	.061	.061	.062
22	MINING	.118	.117	.116	.115	.113	.112	.111	.109	.108
23	CONSTRUCTION	.055	.054	.052	.051	.050	.048	.047	.045	.044
24	FOOD	.055	.054	.053	.051	.050	.049	.048	.047	.046
25	PAPER	.073	.069	.066	.062	.059	.055	.052	.048	.044
26	CHEMICALS	.143	.139	.135	.131	.127	.123	.119	.115	.112
27	GLASS AND GLASS PROD'S	.114	.110	.105	.100	.096	.091	.085	.082	.077
28	STONE AND CLAY PROD'S	.155	.149	.142	.135	.128	.121	.114	.107	.100
29	PRIM. IRON AND STEEL	.213	.205	.198	.190	.182	.174	.167	.159	.151
30	PRIM. NONFERROUS METAL	.146	.141	.137	.133	.128	.124	.119	.115	.110
31	INDUSTRIAL EQUIP.	.061	.060	.058	.056	.054	.053	.051	.049	.048
32	RAILROADS	.078	.077	.077	.076	.076	.075	.074	.074	.073
33	HIGHWAY PASS. TRANS.	.065	.062	.059	.056	.052	.049	.045	.043	.040
34	MOTOR FREIGHT TRANS.	.045	.044	.043	.042	.041	.040	.039	.038	.037
35	WATER TRANSPORTATION	.221	.222	.222	.222	.222	.222	.223	.223	.223
36	AIR TRANSPORTATION	.185	.173	.162	.150	.139	.128	.116	.105	.093
37	TRADE	.033	.032	.031	.030	.028	.027	.026	.025	.024
38	SERVICES	.031	.030	.028	.027	.026	.025	.024	.022	.021
39	MOTOR VEHICLES AND EQUIP.	.064	.063	.063	.062	.061	.060	.059	.058	.058
40	CONSUMER GOODS	.046	.045	.044	.043	.041	.040	.039	.038	.036
	PERS. CONSUMP. EXPEND.	.090	.083	.076	.071	.066	.061	.057	.053	.050

Table 5c. Projected Energy Intensities in Five Year Intervals under Scenario C.

(Units: BTU/BTU for sectors1-20. 10^6/BTU $67 for sector 21-40.)

	SECTOR NAME	1970	1975	1980	1985	1990	1995	2000	2005	2010
1	COAL MINING	1.006	1.006	1.006	1.006	1.006	1.006	1.006	1.006	1.006
2	CRUDE PETROLEUM, GAS	1.060	1.067	1.073	1.080	1.086	1.093	1.099	1.106	1.112
3	SHALE OIL	1.520	1.520	1.520	1.520	1.520	1.520	1.520	1.520	1.520
4	GASIFIED COAL	1.687	1.687	1.686	1.686	1.686	1.686	1.685	1.685	1.685
5	SOLVENT-REFINED COAL	1.840	1.840	1.840	1.840	1.840	1.840	1.840	1.840	1.840
6	REF'D PETROLEUM PRODUCTS	1.205	1.212	1.218	1.225	1.232	1.238	1.245	1.251	1.258
7	NATURAL GAS UTILITIES	1.103	1.109	1.116	1.122	1.129	1.136	1.142	1.149	1.156
8	COAL COMBINED CYCLE ELEC.	2.578	2.577	2.576	2.575	2.573	2.572	2.571	2.570	2.569
9	FOSSIL ELECTRIC UTILITIES	3.728	3.646	3.565	3.483	3.401	3.319	3.238	3.156	3.074
10	NUCLEAR ELEC. UTILITES	3.752	3.748	3.745	3.742	3.739	3.735	3.732	3.729	3.725
11	HIGH-TEMP HAS REACTOR	3.784	3.781	3.777	3.773	3.770	3.766	3.762	3.758	3.755
12	RENEWABLE ELEC. UTIL'S	3.633	3.632	3.632	3.631	3.630	3.630	3.629	3.628	3.627
13	ORE-REDUCTION FEEDSTOCKS	1.502	1.502	1.502	1.502	1.502	1.501	1.501	1.501	1.501
14	CHEMICAL FEEDSTOCKS	1.185	1.191	1.198	1.204	1.211	1.217	1.224	1.231	1.237
15	MOTIVE POWER	6.025	6.058	6.091	6.124	6.158	6.191	6.224	6.257	6.290
16	MISC. THERMAL USES	1.725	1.732	1.740	1.747	1.754	1.762	1.769	1.776	1.784
17	WATER HEAT	2.157	2.152	2.147	2.142	2.137	2.132	2.127	2.122	2.117
18	SPACE HEAT	1.573	1.579	1.586	1.593	1.599	1.606	1.613	1.619	1.626
19	AIR-CONDITIONINS	1.382	1.359	1.335	1.312	1.288	1.265	1.241	1.218	1.194
20	MISC. ELEC. POWER USES	3.711	3.644	3.578	3.511	3.445	3.379	3.312	3.246	3.179
21	AGRICULTURE	.058	.059	.061	.062	.064	.065	.067	.068	.069
22	MINING	.119	.118	.116	.115	.114	.113	.112	.111	.110
23	CONSTRUCTION	.055	.055	.054	.053	.053	.052	.051	.050	.050
24	FOOD	.055	.055	.055	.055	.055	.054	.054	.054	.054
25	PAPER	.073	.071	.068	.065	.062	.059	.056	.053	.050
26	CHEMICALS	.143	.140	.137	.134	.131	.128	.125	.121	.118
27	GLASS AND GLASS PROD'S	.115	.111	.108	.104	.100	.097	.093	.089	.086
28	STONE AND CLAY PROD'S	.157	.152	.148	.143	.139	.134	.130	.125	.121
29	PRIM. IRON AND STEEL	.214	.207	.200	.194	.187	.180	.174	.167	.160
30	PRIM. NONFERROUS METAL	.148	.146	.145	.144	.142	.141	.140	.138	.137
31	INDUSTRIAL EQUIP.	.062	.061	.060	.059	.058	.057	.056	.055	.054
32	RAILROADS	.078	.078	.078	.078	.078	.078	.079	.079	.079
33	HIGHWAY PASS. TRANS.	.066	.063	.061	.059	.057	.055	.053	.050	.048
34	MOTOR FREIGHT TRANS.	.045	.045	.045	.044	.044	.043	.043	.043	.042
35	WATER TRANSPORTATION	.222	.222	.223	.223	.224	.224	.225	.225	.226
36	AIR TRANSPORTATION	.185	.175	.165	.155	.145	.135	.125	.114	.104
37	TRADE	.033	.033	.032	.031	.030	.029	.029	.028	.027
38	SERVICES	.031	.030	.029	.028	.027	.026	.025	.025	.024
39	MOTOR VEHICLES AND EQUIP.	.065	.065	.065	.065	.065	.065	.064	.064	.064
40	CONSUMER GOODS	.047	.046	.046	.045	.044	.044	.043	.043	.042
	PERS. CONSUMP. EXPEND.	.092	.087	.084	.080	.076	.073	.070	.068	.065

Table 5d. Projected Energy Intensities in Five Year Intervals under Scenario D.

(Units: BTU/BTU for sectors 1-20. 10^6/BTU $67 for sector 21-40.)

	SECTOR NAME	1970	1975	1980	1985	1990	1995	2000	2005	2010
1	COAL MINING	1.006	1.006	1.006	1.006	1.006	1.006	1.006	1.005	1.006
2	CRUDE PETROLEUM, GAS	1.060	1.067	1.073	1.080	1.086	1.093	1.100	1.106	1.113
3	SHALE OIL	1.520	1.520	1.520	1.520	1.520	1.520	1.520	1.520	1.520
4	GASIFIED COAL	1.687	1.687	1.687	1.686	1.686	1.686	1.686	1.686	1.686
5	SOLVENT-REFINED COAL	1.841	1.841	1.841	1.841	1.841	1.841	1.841	1.841	1.841
6	REF'D PETROLEUM PRODUCTS	1.205	1.212	1.219	1.225	1.232	1.239	1.246	1.253	1.260
7	NATURAL GAS UTILITIES	1.103	1.109	1.116	1.123	1.129	1.136	1.143	1.150	1.156
8	COAL COMBINED CYCLE ELEC.	2.578	2.577	2.576	2.576	2.575	2.574	2.574	2.573	2.572
9	FOSSIL ELECTRIC UTILITIES	3.728	3.647	3.566	3.484	3.403	3.322	3.240	3.159	3.077
10	NUCLEAR ELEC. UTILITES	3.752	3.750	3.747	3.745	3.742	3.740	3.737	3.735	3.732
11	HIGH-TEMP HAS REACTOR	3.785	3.782	3.779	3.776	3.774	3.771	3.768	3.765	3.762
12	RENEWABLE ELEC. UTIL'S	3.633	3.633	3.632	3.632	3.631	3.631	3.630	3.630	3.629
13	ORE-REDUCTION FEEDSTOCKS	1.502	1.502	1.502	1.502	1.502	1.502	1.502	1.501	1.501
14	CHEMICAL FEEDSTOCKS	1.185	1.192	1.198	1.205	1.212	1.218	1.225	1.232	1.238
15	MOTIVE POWER	6.025	6.059	6.093	6.127	6.161	6.195	6.229	6.263	6.297
16	MISC. THERMAL USES	1.725	1.732	1.740	1.747	1.755	1.762	1.770	1.777	1.785
17	WATER HEAT	2.157	2.153	2.148	2.143	2.138	2.133	2.128	2.124	2.119
18	SPACE HEAT	1.573	1.580	1.586	1.593	1.600	1.607	1.614	1.621	1.627
19	AIR-CONDITIONINS	1.382	1.359	1.336	1.312	1.289	1.266	1.242	1.219	1.196
20	MISC. ELEC. POWER USES	3.711	3.645	3.579	3.513	3.447	3.381	3.314	3.248	3.182
21	AGRICULTURE	.058	.060	.061	.063	.065	.067	.068	.070	.072
22	MINING	.119	.118	.117	.116	.115	.114	.114	.113	.112
23	CONSTRUCTION	.056	.055	.055	.055	.055	.055	.055	.055	.054
24	FOOD	.056	.056	.057	.057	.058	.058	.059	.059	.060
25	PAPER	.074	.071	.069	.067	.064	.062	.060	.057	.055
26	CHEMICALS	.144	.141	.139	.136	.134	.131	.129	.127	.124
27	GLASS AND GLASS PROD'S	.115	.112	.109	.105	.102	.099	.095	.092	.089
28	STONE AND CLAY PROD'S	.158	.156	.154	.151	.149	.147	.145	.142	.140
29	PRIM. IRON AND STEEL	.214	.208	.202	.195	.189	.183	.175	.170	.164
30	PRIM. NONFERROUS METAL	.148	.147	.147	.146	.145	.145	.144	.143	.143
31	INDUSTRIAL EQUIP.	.062	.061	.061	.060	.060	.059	.059	.058	.058
32	RAILROADS	.079	.079	.080	.081	.081	.082	.083	.083	.084
33	HIGHWAY PASS. TRANS.	.067	.066	.065	.065	.064	.063	.063	.062	.062
34	MOTOR FREIGHT TRANS.	.046	.046	.045	.045	.045	.045	.045	.045	.045
35	WATER TRANSPORTATION	.222	.223	.223	.224	.225	.226	.226	.227	.228
36	AIR TRANSPORTATION	.190	.186	.183	.179	.176	.172	.169	.166	.162
37	TRADE	.034	.033	.033	.032	.032	.032	.031	.031	.031
38	SERVICES	.031	.031	.030	.030	.029	.028	.028	.027	.027
39	MOTOR VEHICLES AND EQUIP.	.065	.065	.066	.066	.066	.066	.067	.067	.067
40	CONSUMER GOODS	.047	.047	.047	.047	.047	.047	.046	.046	.046
	PERS. CONSUMP. EXPEND.	.094	.090	.088	.086	.083	.081	.079	.076	.075

4.0 PROJECTED LABOR INTENSITIES

Future labor intensities were derived in a different manner than the energy intensities, mainly because of a lack of a set of 2010 projected direct labor intensities and because the 2010 projected I/O matrix was aggregated especially for the derivation of energy demand.

To project the required 40 sector labor intensities we first aggregated the Illinois I/O model labor intensities sector (1963, 1970) to 40 sectors. We also reduced the BLS projected 1980 and 1985 labor intensities to 40 sectors (BLS 1975).

These intensities were plotted in Figures 3a through 3z using the symbol "X". The intensities were in most cases fit with a monotonically declining curve representing diminishing returns to labor brought on by rising energy prices. A second constraint was that the curve be essentially flat by the year 2010. We felt that this approach, though somewhat arbitrary was no more arbitrary than projecting elasticities of demand over the next 20 years. We feel that the effects of improved technology in labor use will be approximately equalled by the tendency to use more labor in industry and commerce due to rising relative energy prices. We feel this procedure approximates energy price scenario B, a doubling of the 1974 energy prices by 2010. Certainly this empirical approach is warranted by the constraint of the contract size.

The various curves in Figures 3a through 3z give the data for every five years shown in Table 6, which is necessary for the example application.

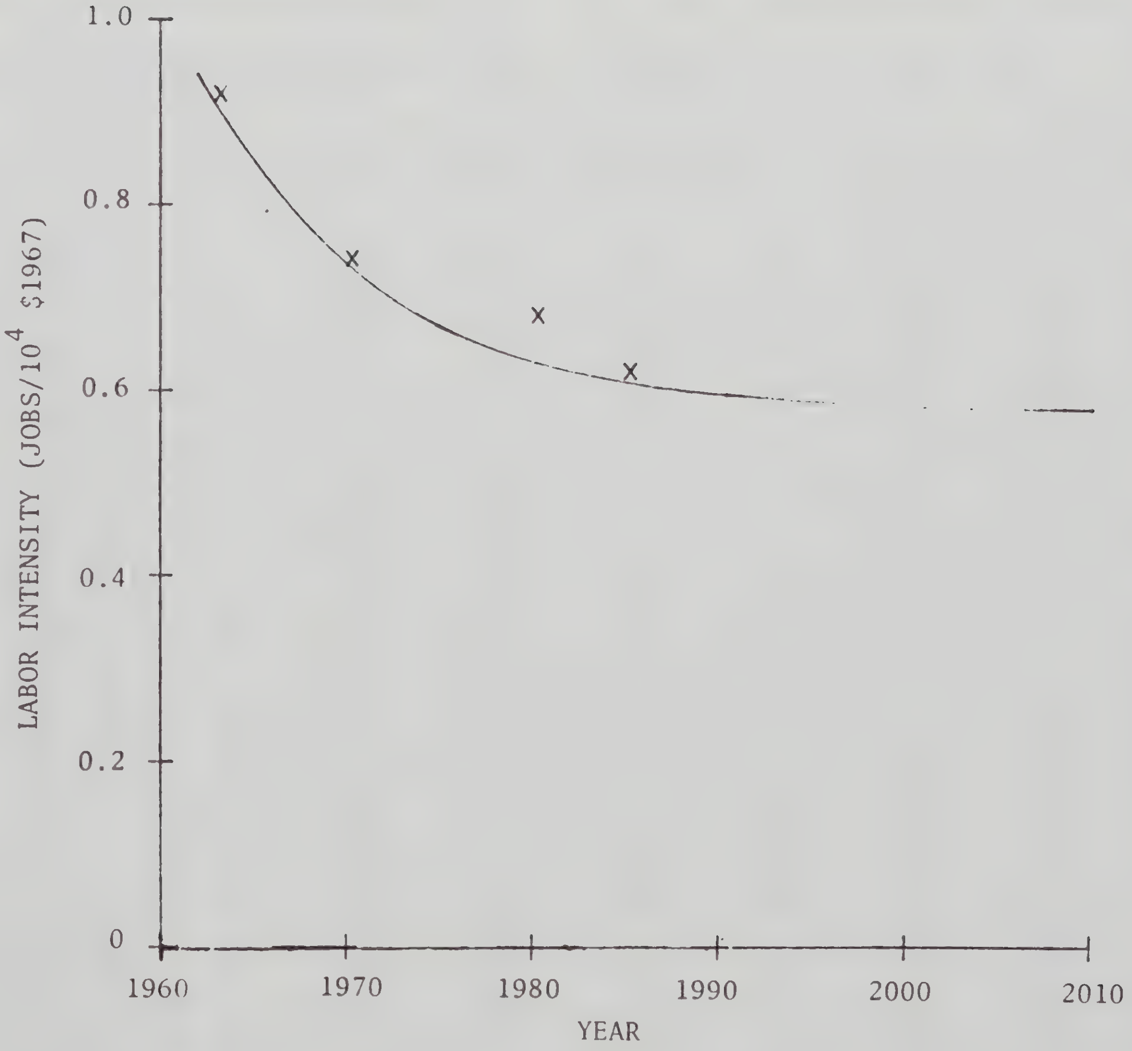

Figure 3a. Projected Labor Intensities for the 40 Sector Economy, 1980 - 2010.

SECTOR 1.

(NOTE: The lower left portion of the symbol x represents the exact data position.)

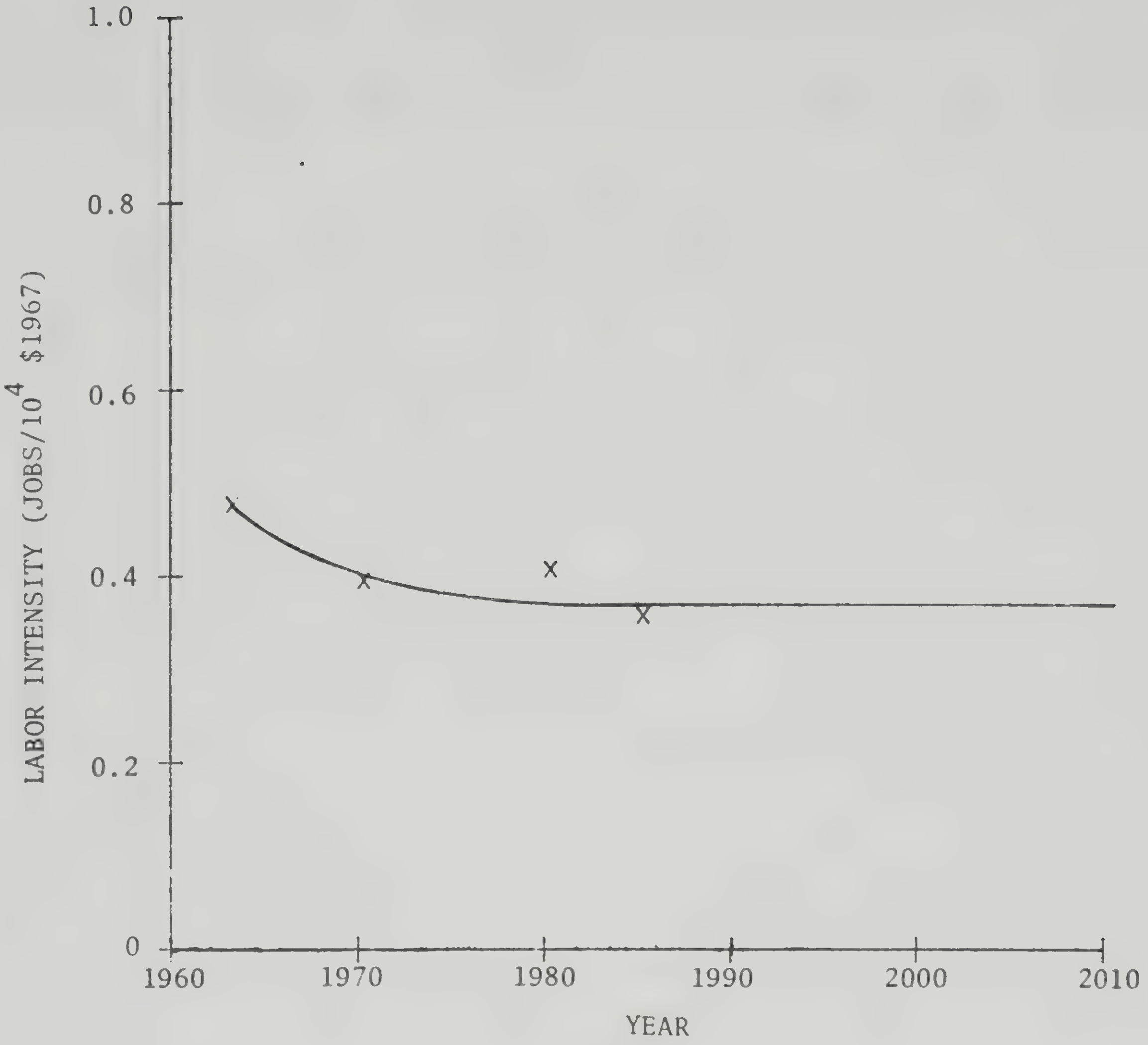

Figure 3b. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 2.

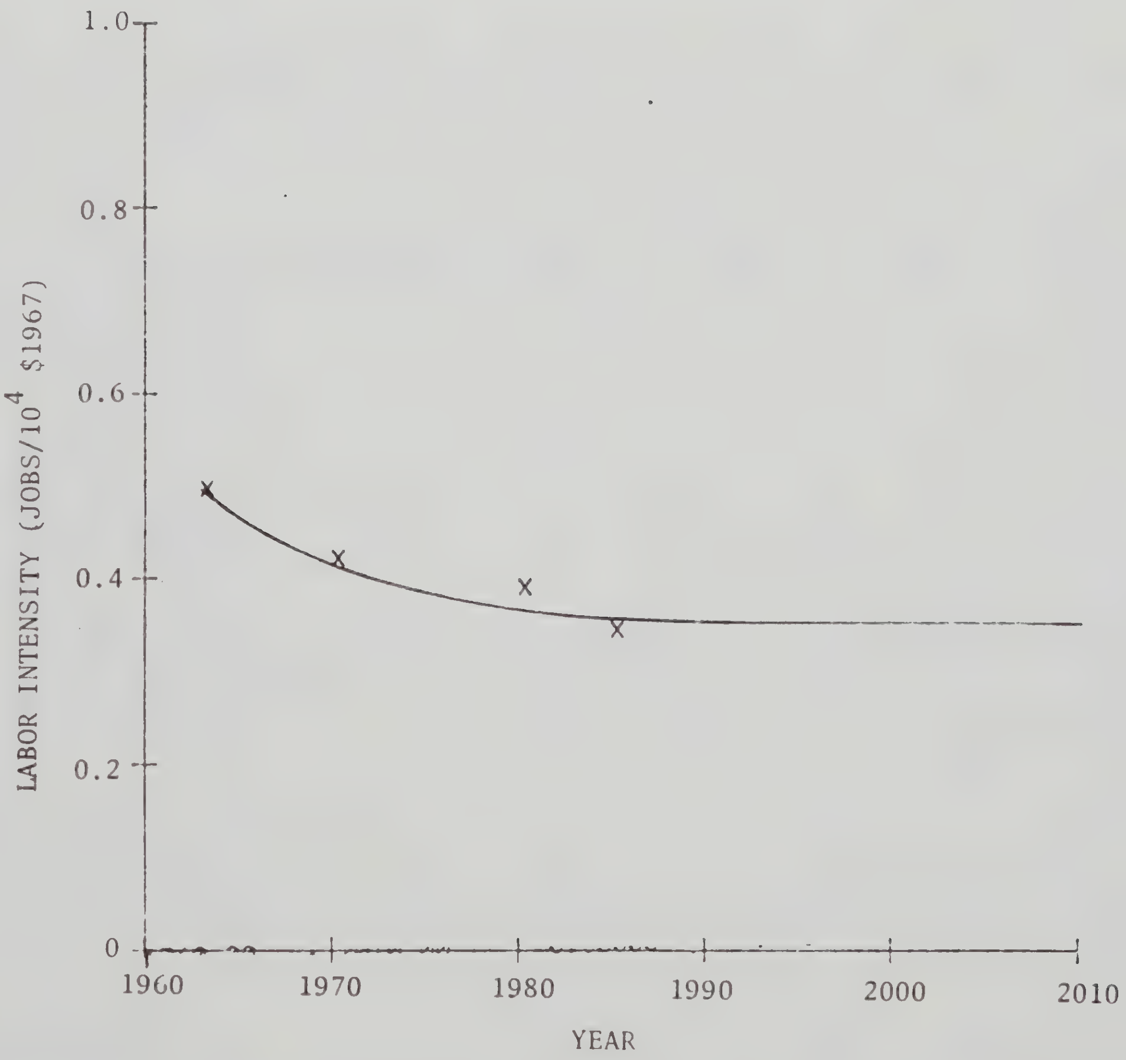

Figure 3c. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 6.

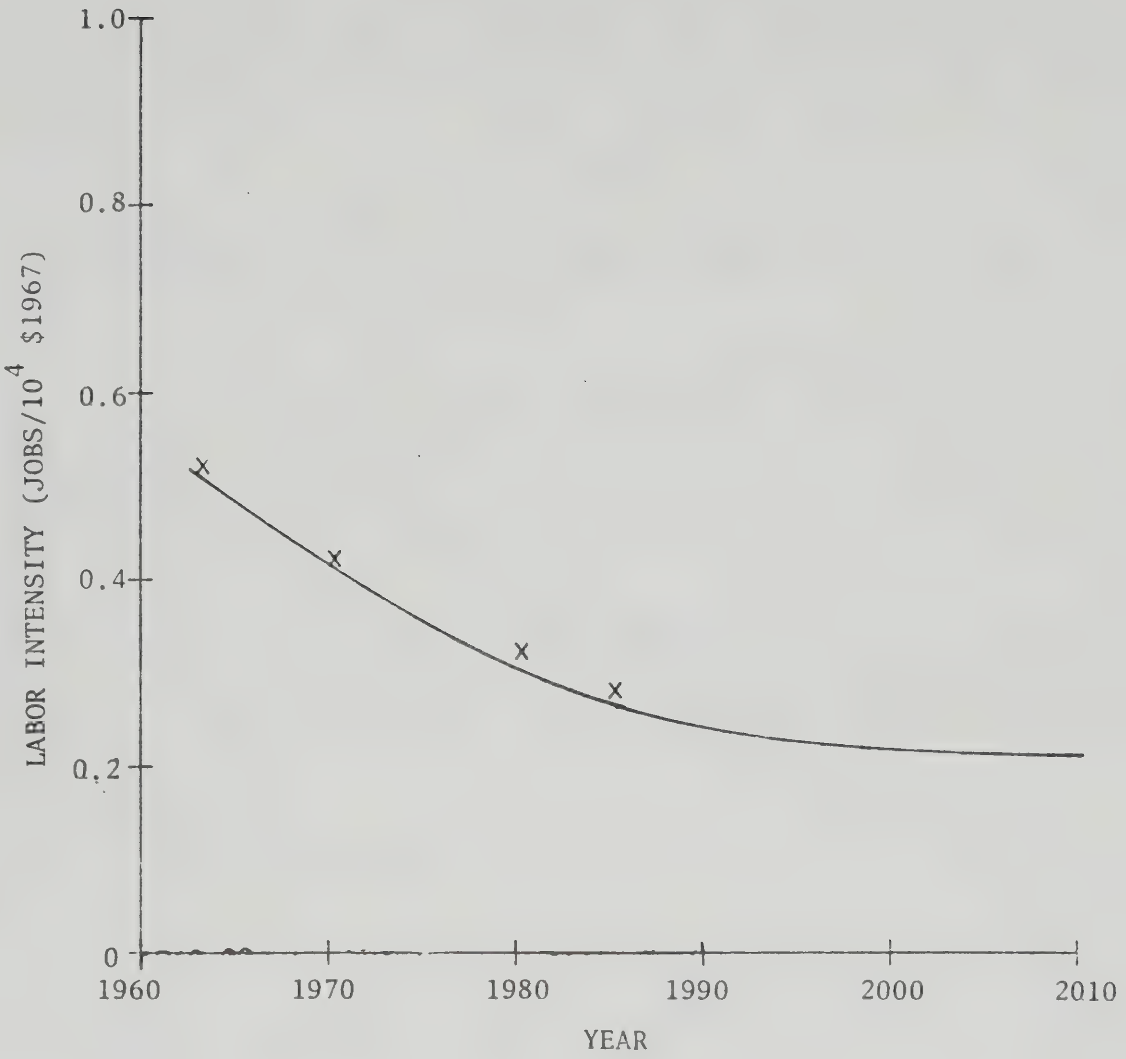

Figure 3d. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 7

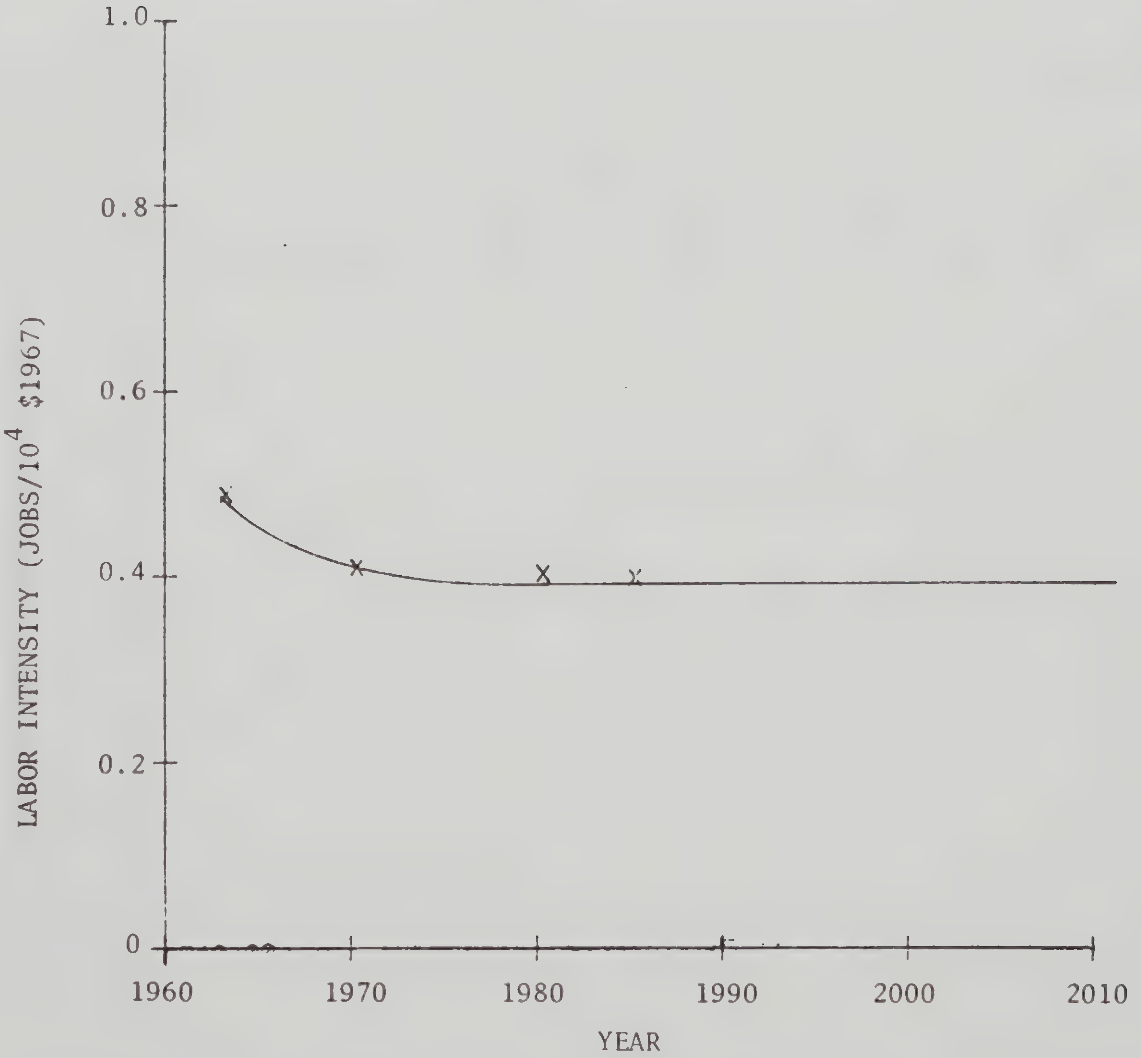

Figure 3e. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 9

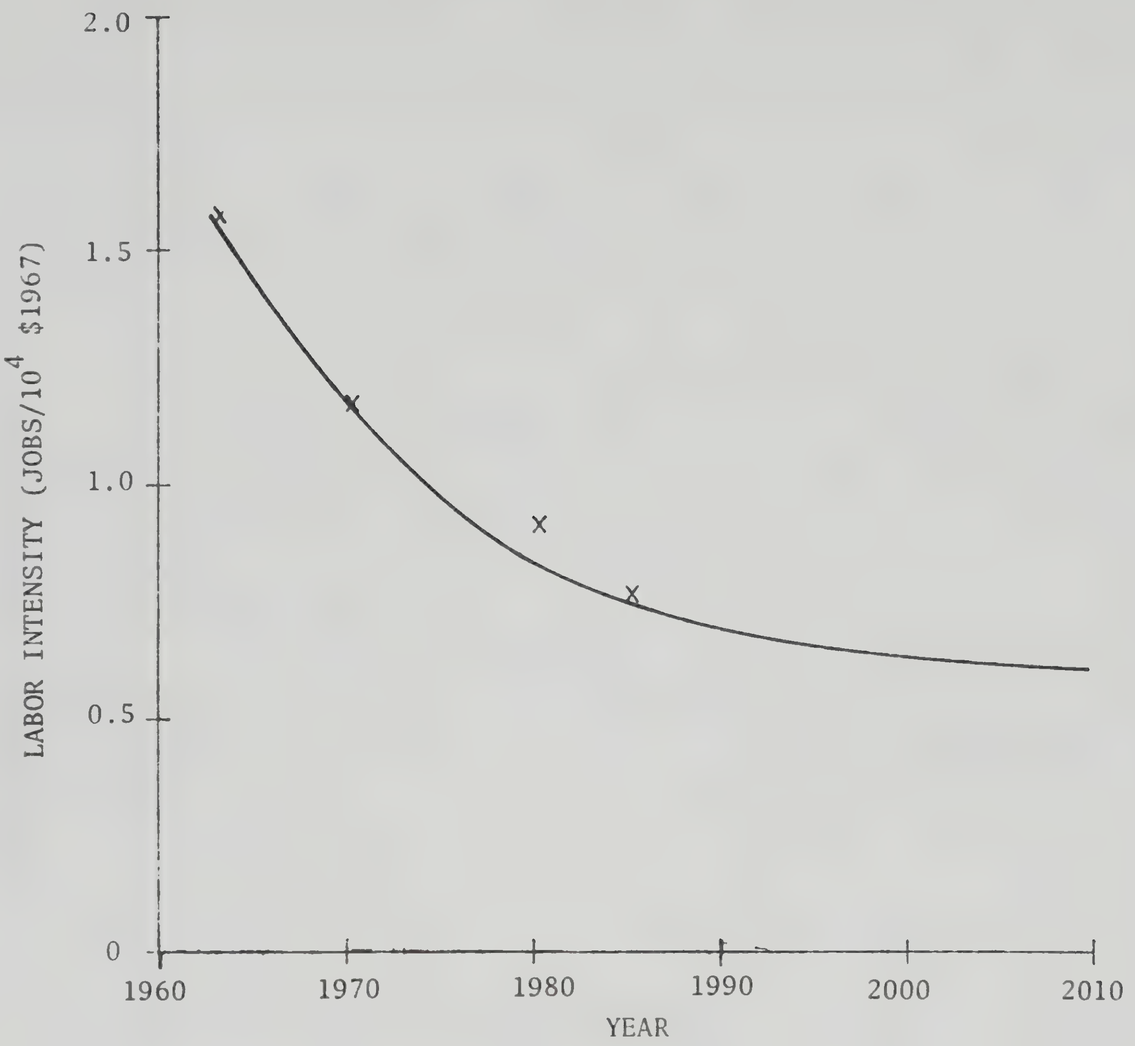

Figure 3f. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 21

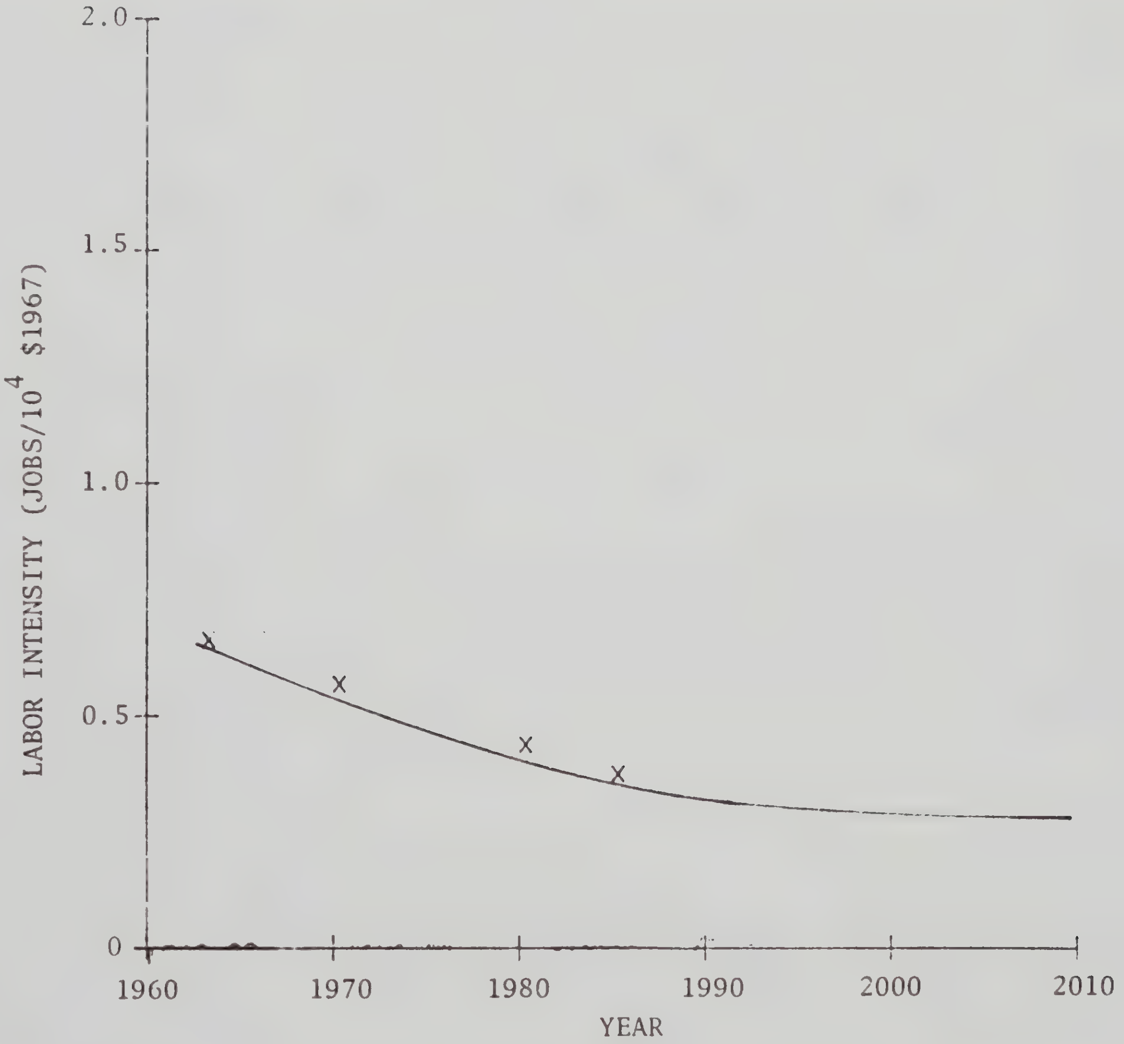

Figure 3g. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 22

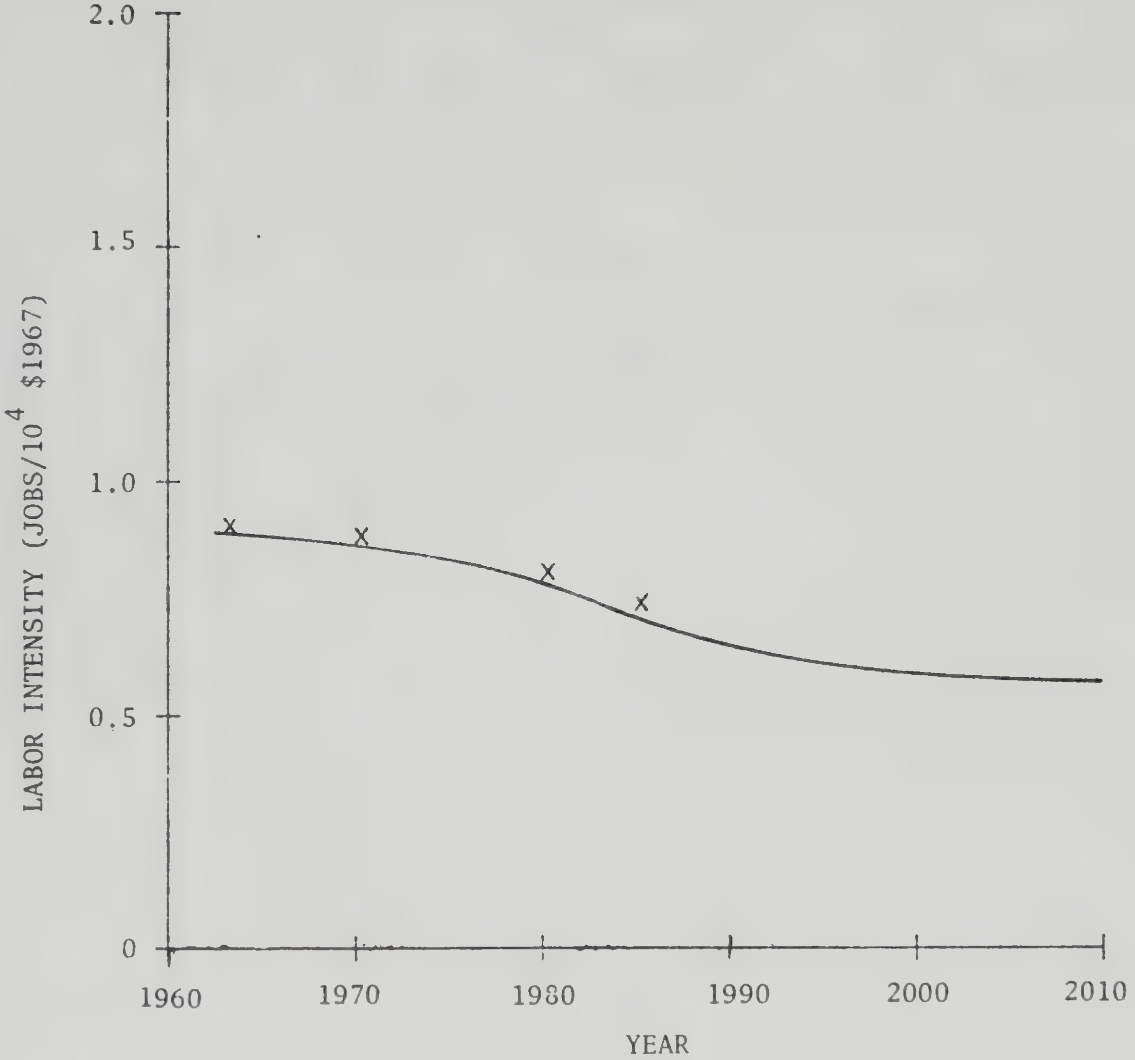

Figure 3h. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 23

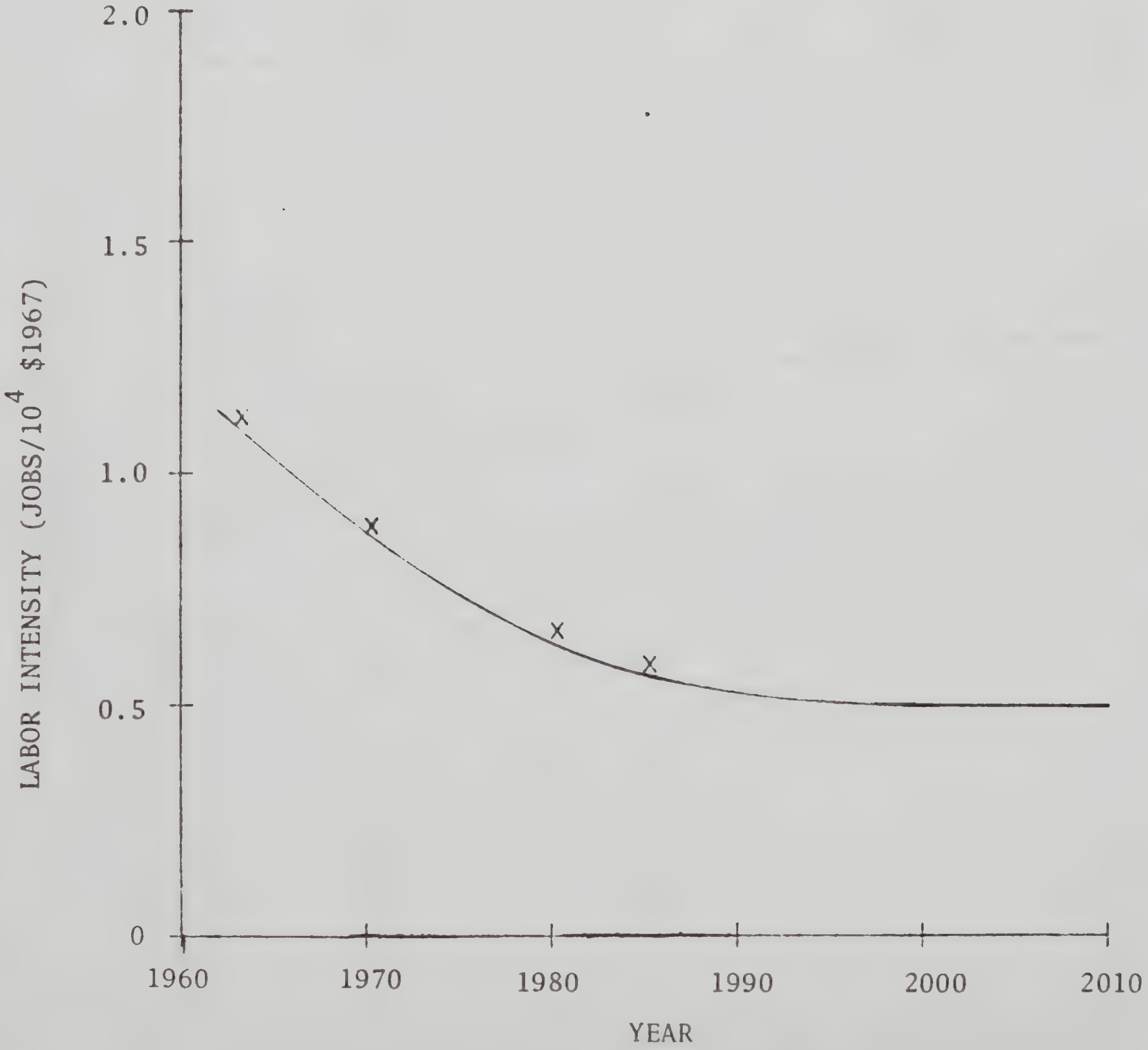

Figure 3i. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 24

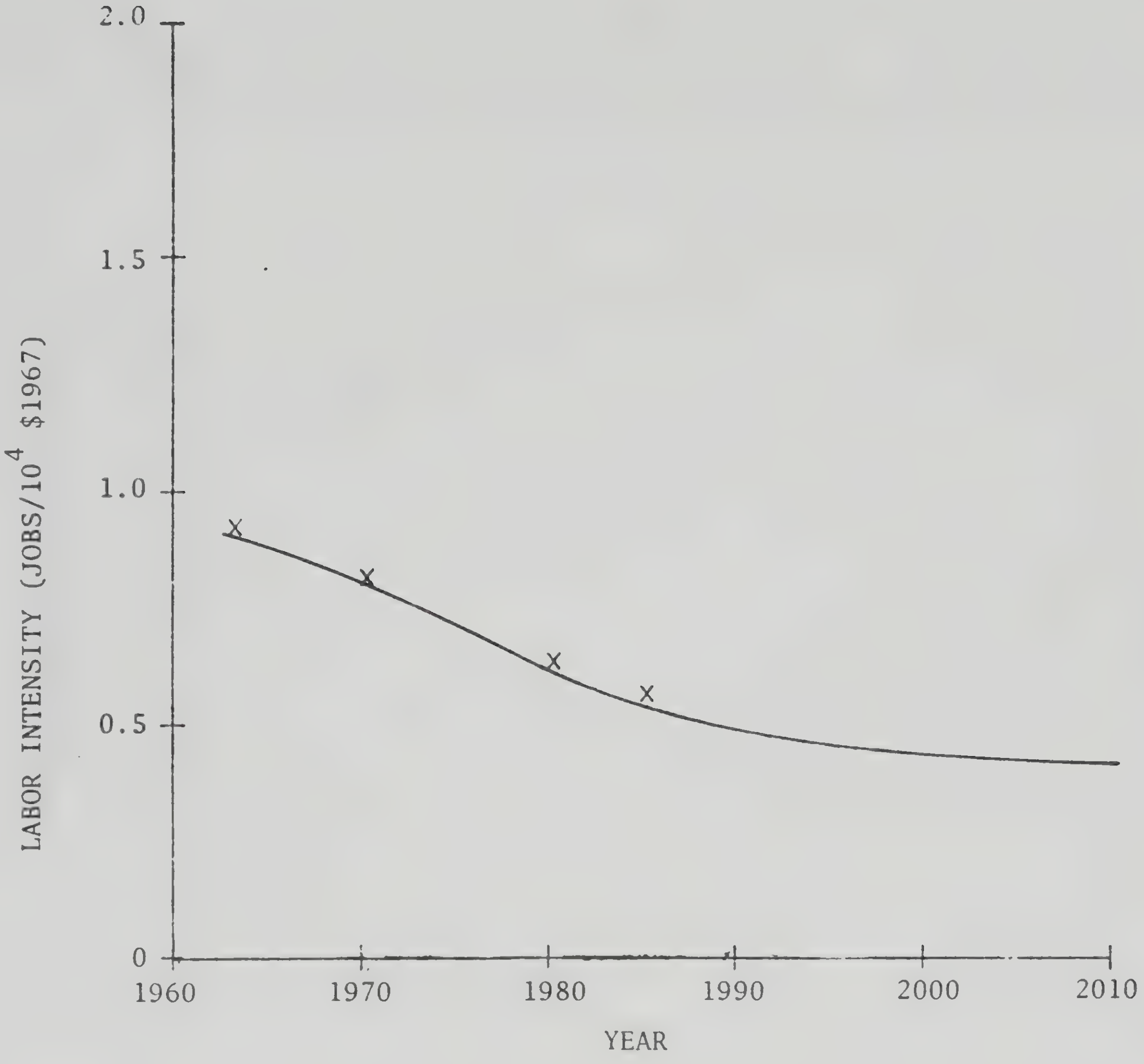

Figure 3j. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 25

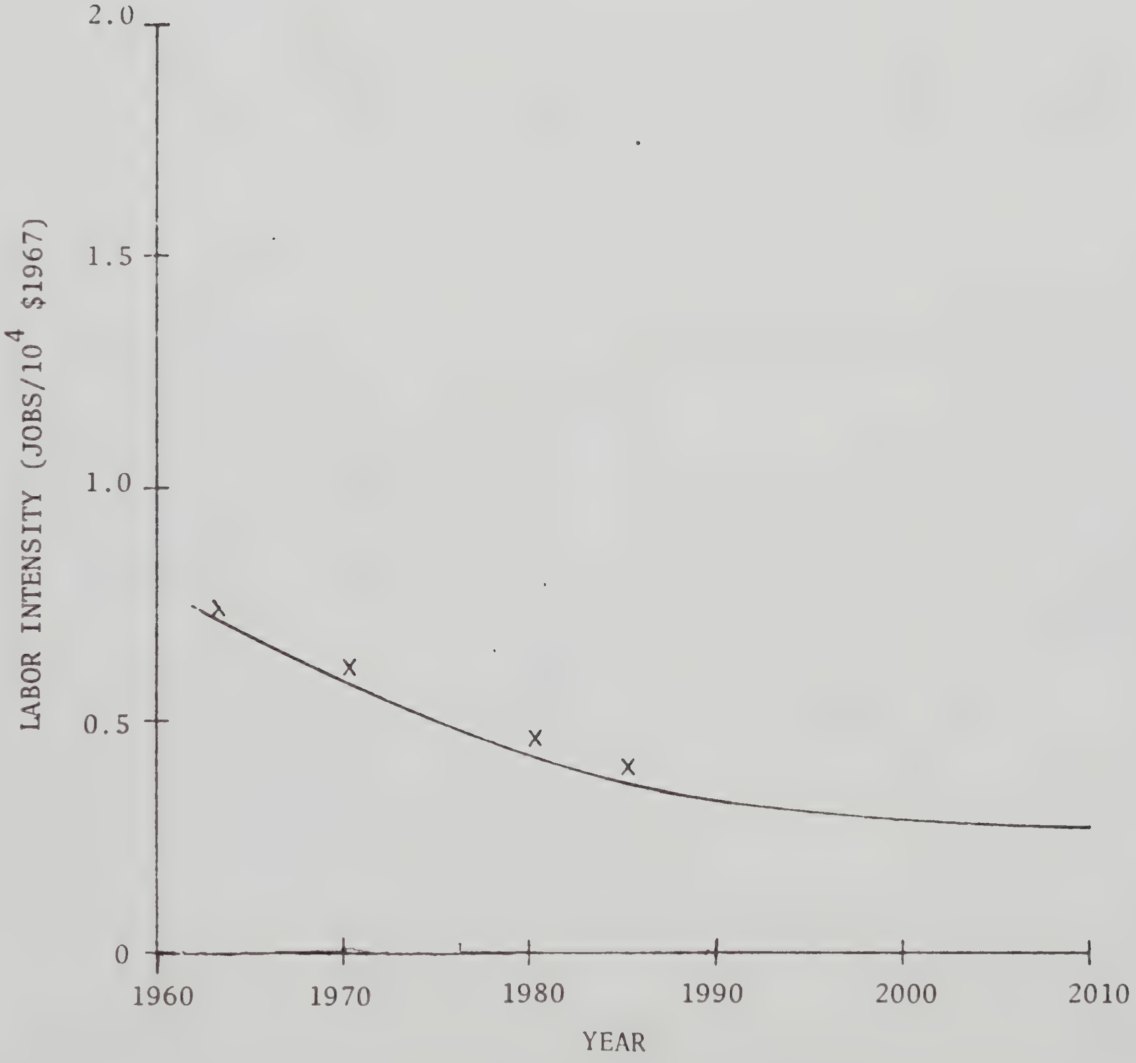

Figure 3k. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 26

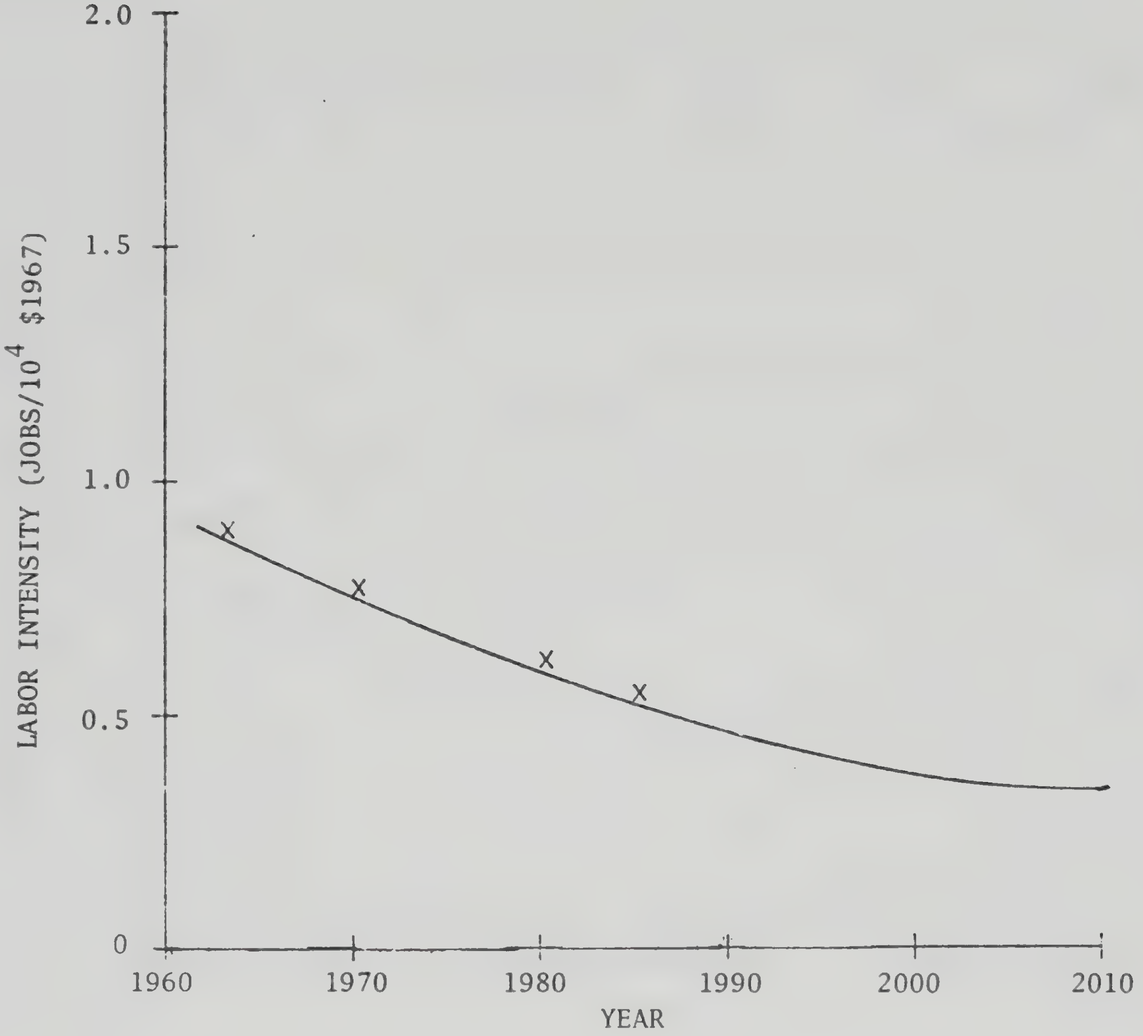

Figure 31. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 27

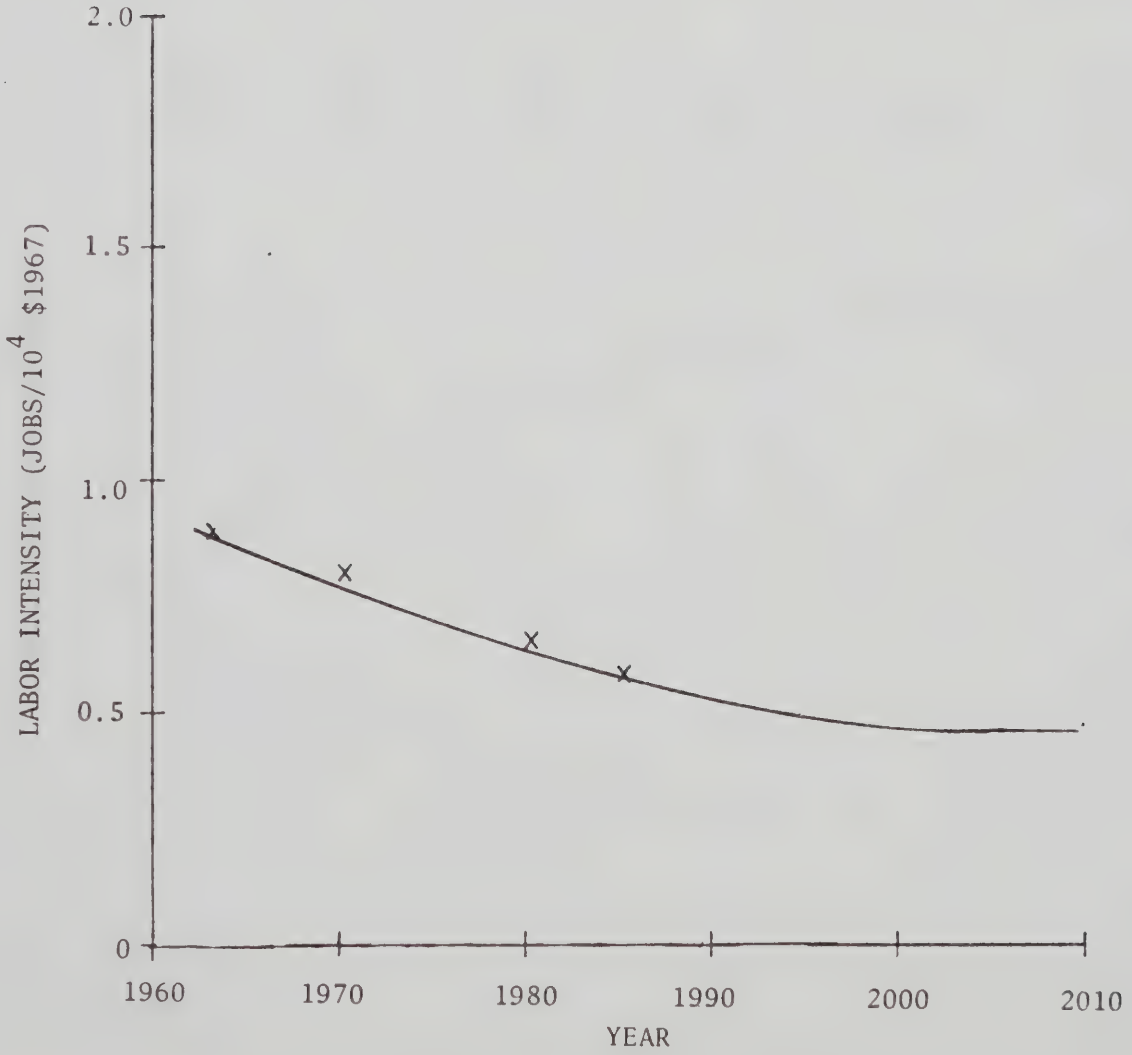

Figure 3m. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 28

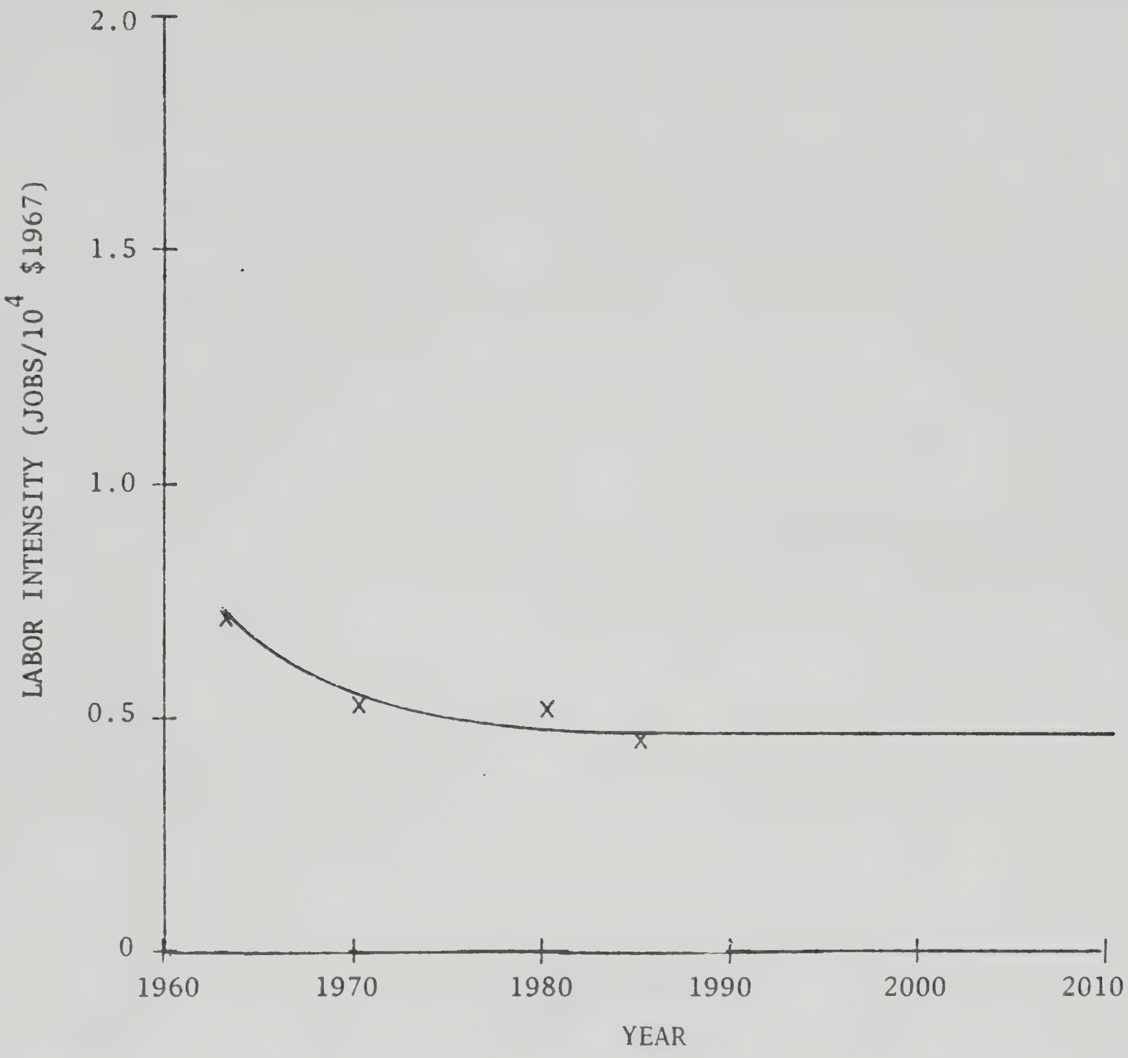

Figure 3n. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 29

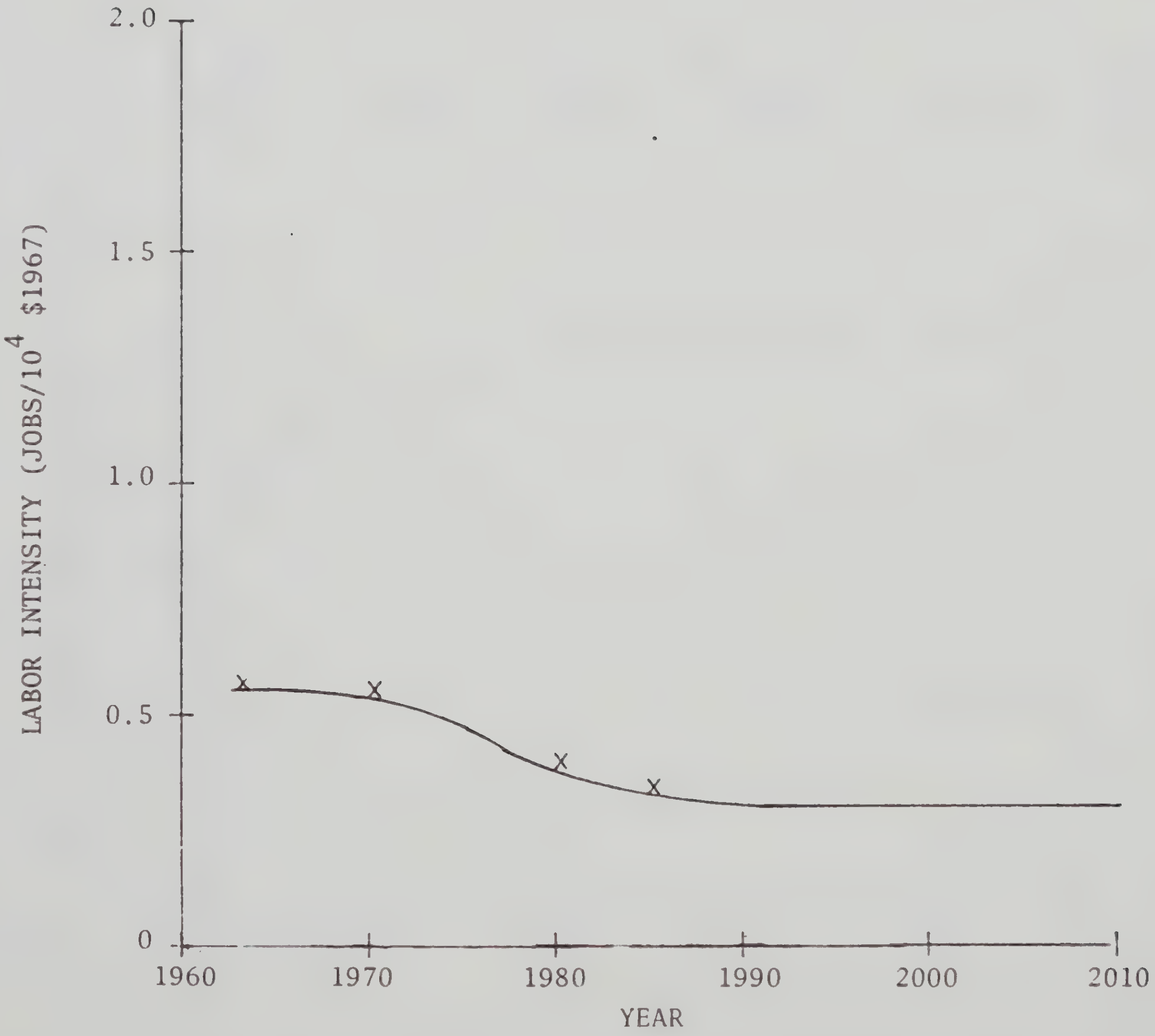

Figure 3o. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 30

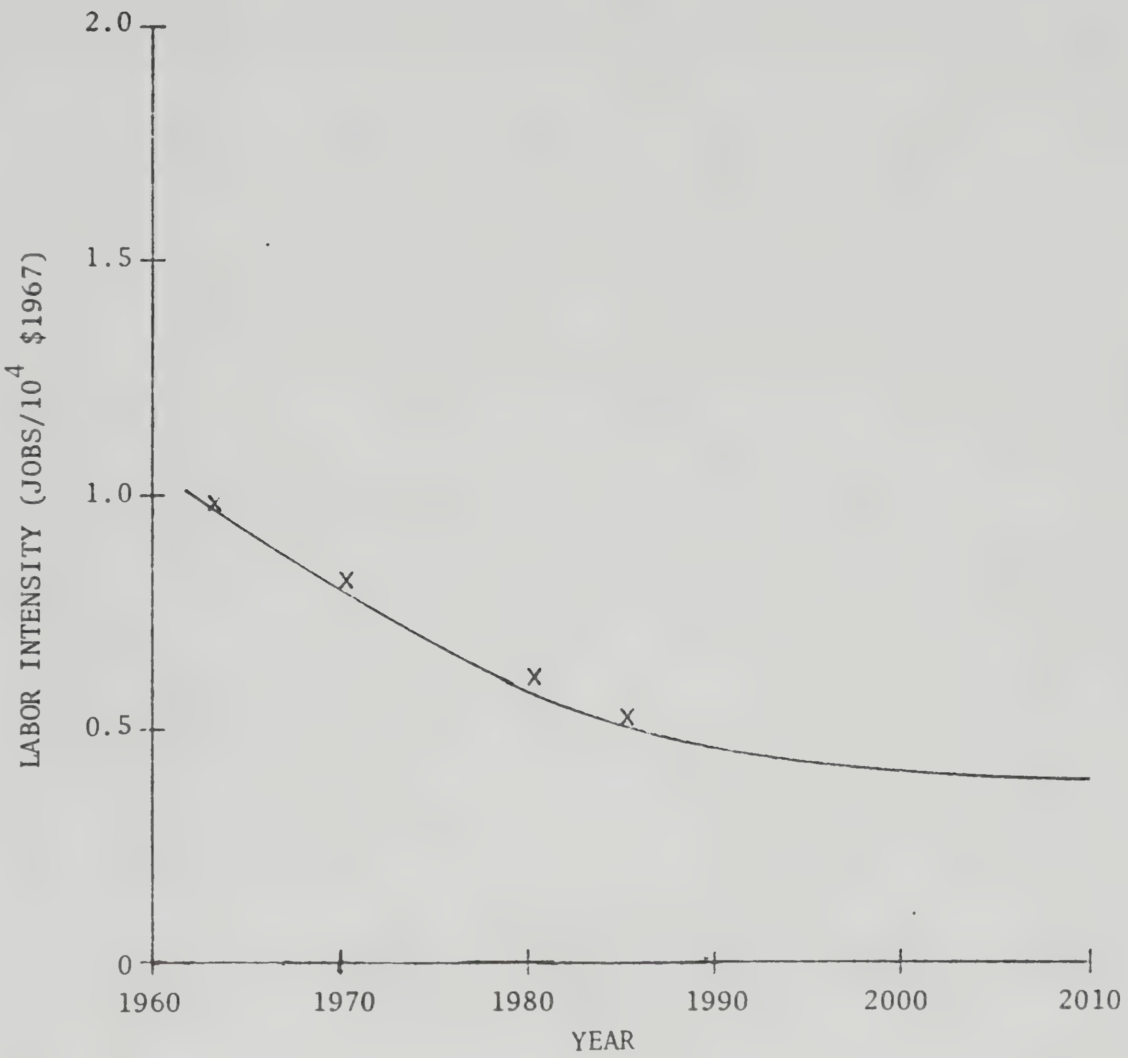

Figure 3p. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 31

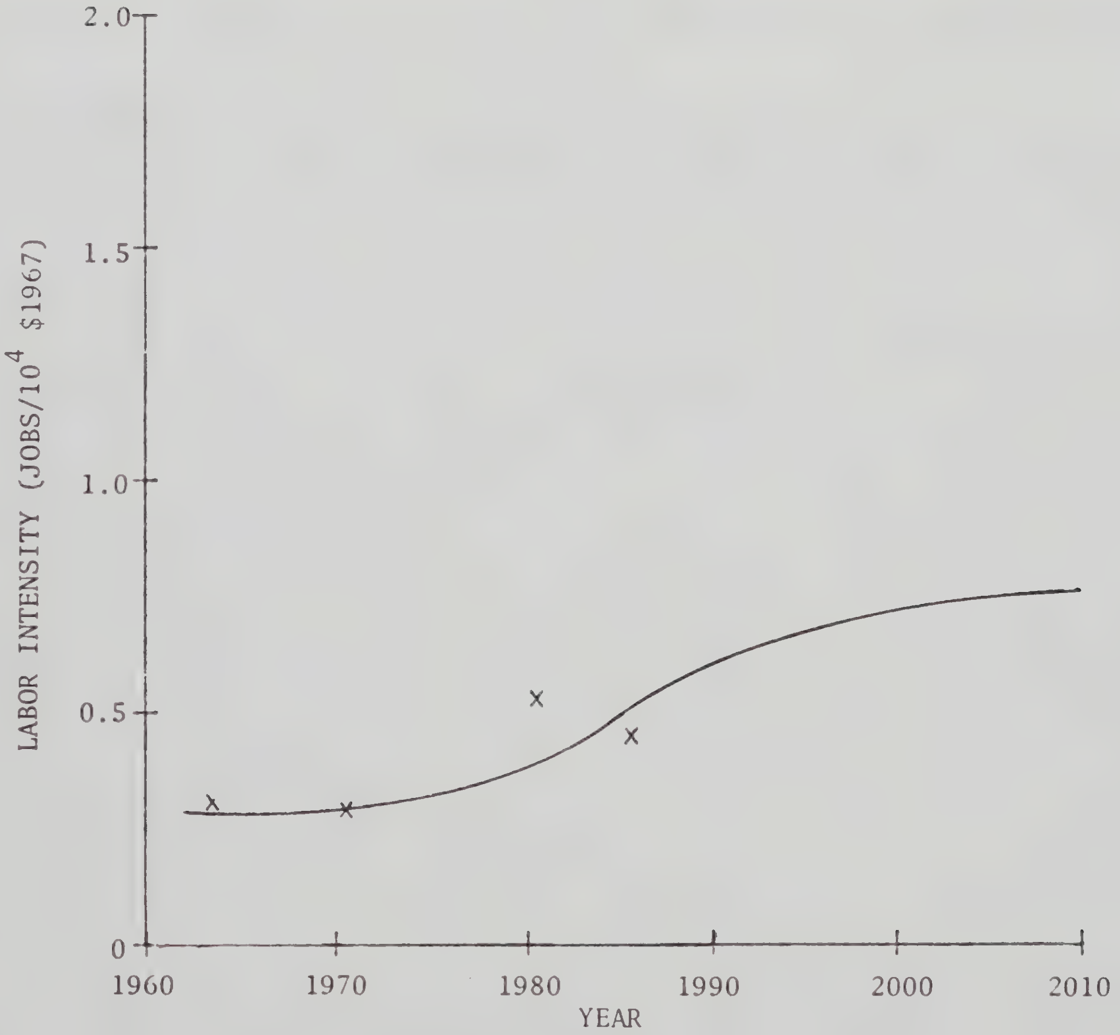

Figure 3q. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 32

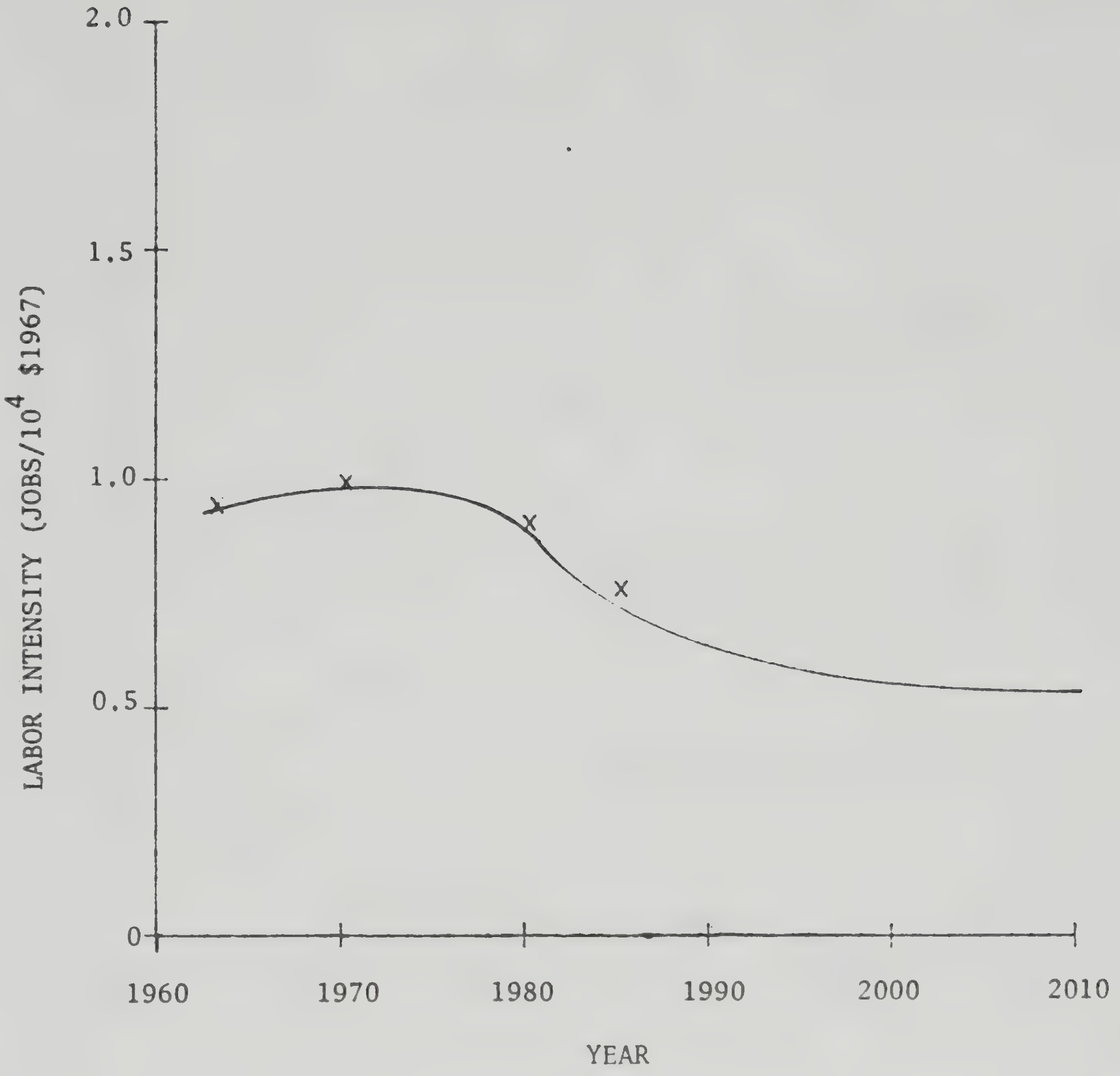

Figure 3r. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 33

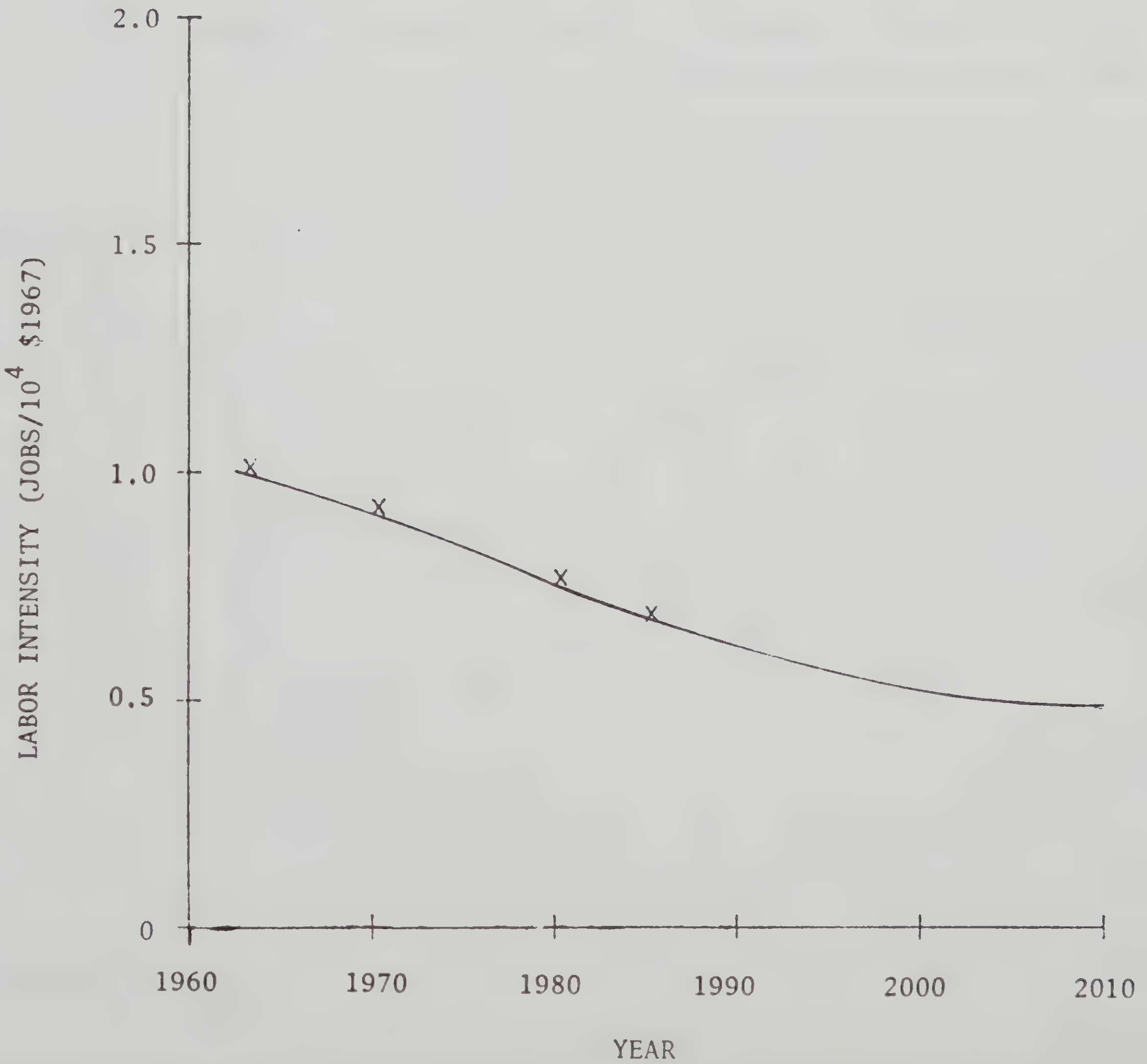

Figure 3s. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

SECTOR 34

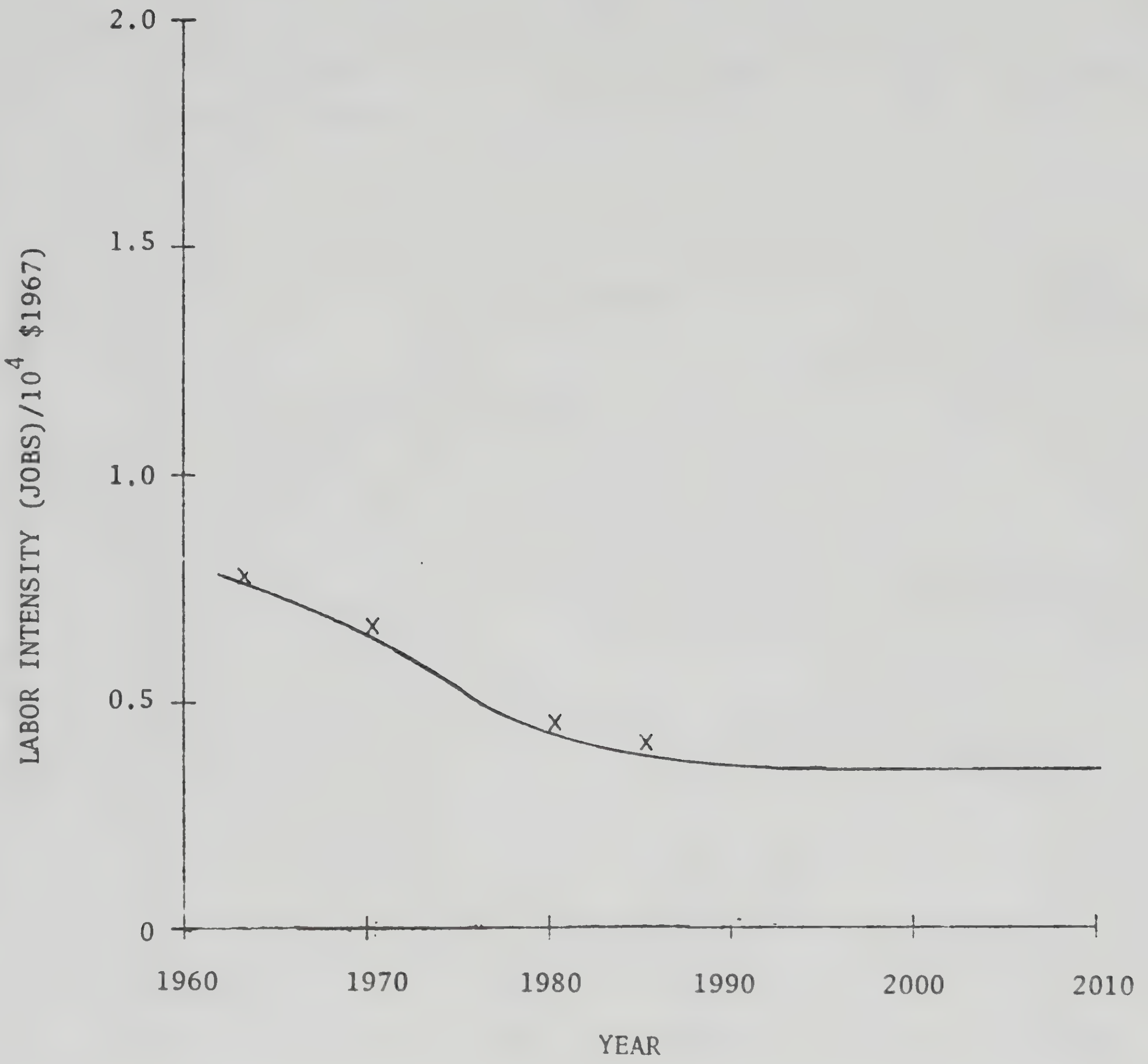

Figure 3t. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 35

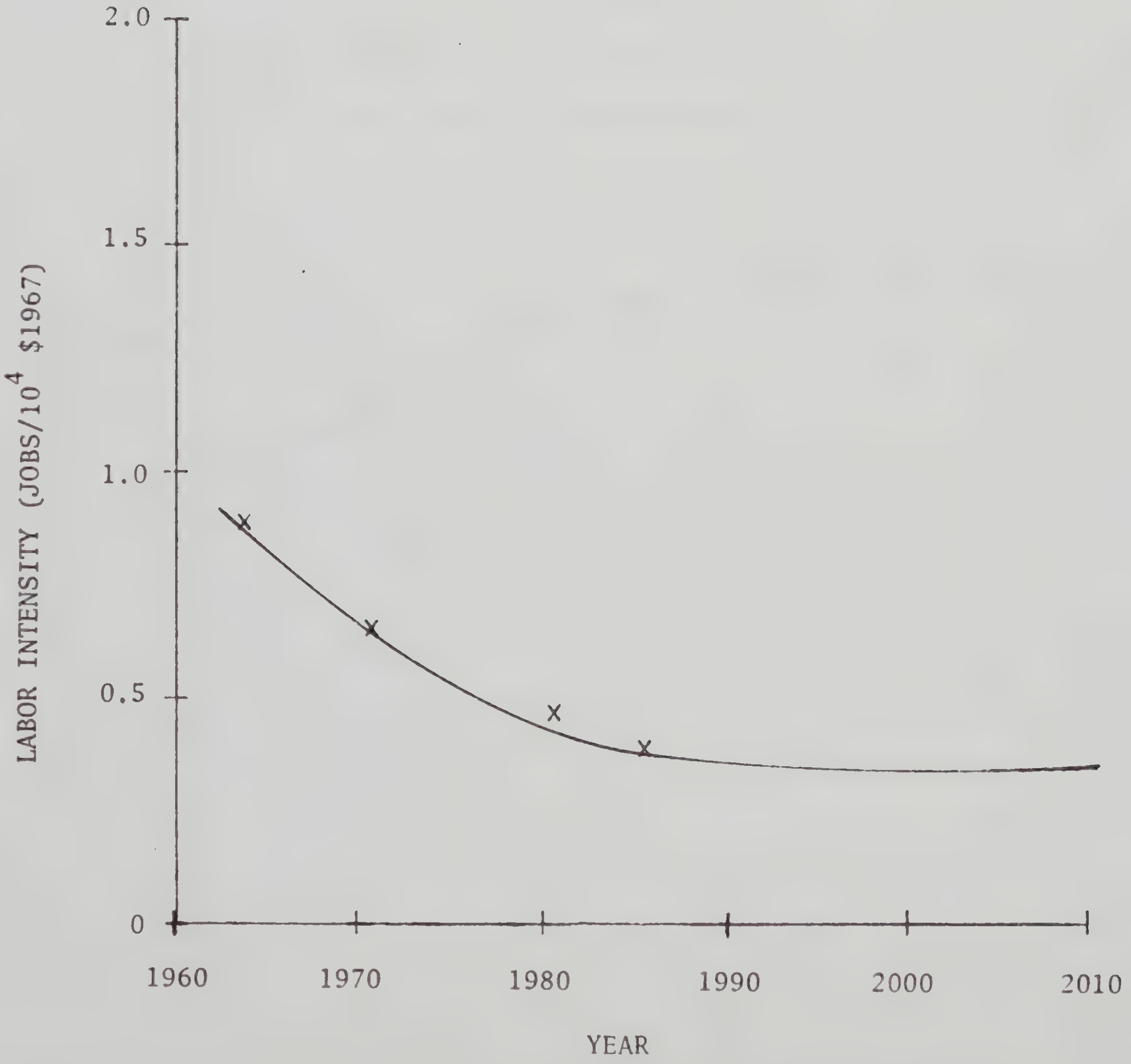

Figure 3u. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 36

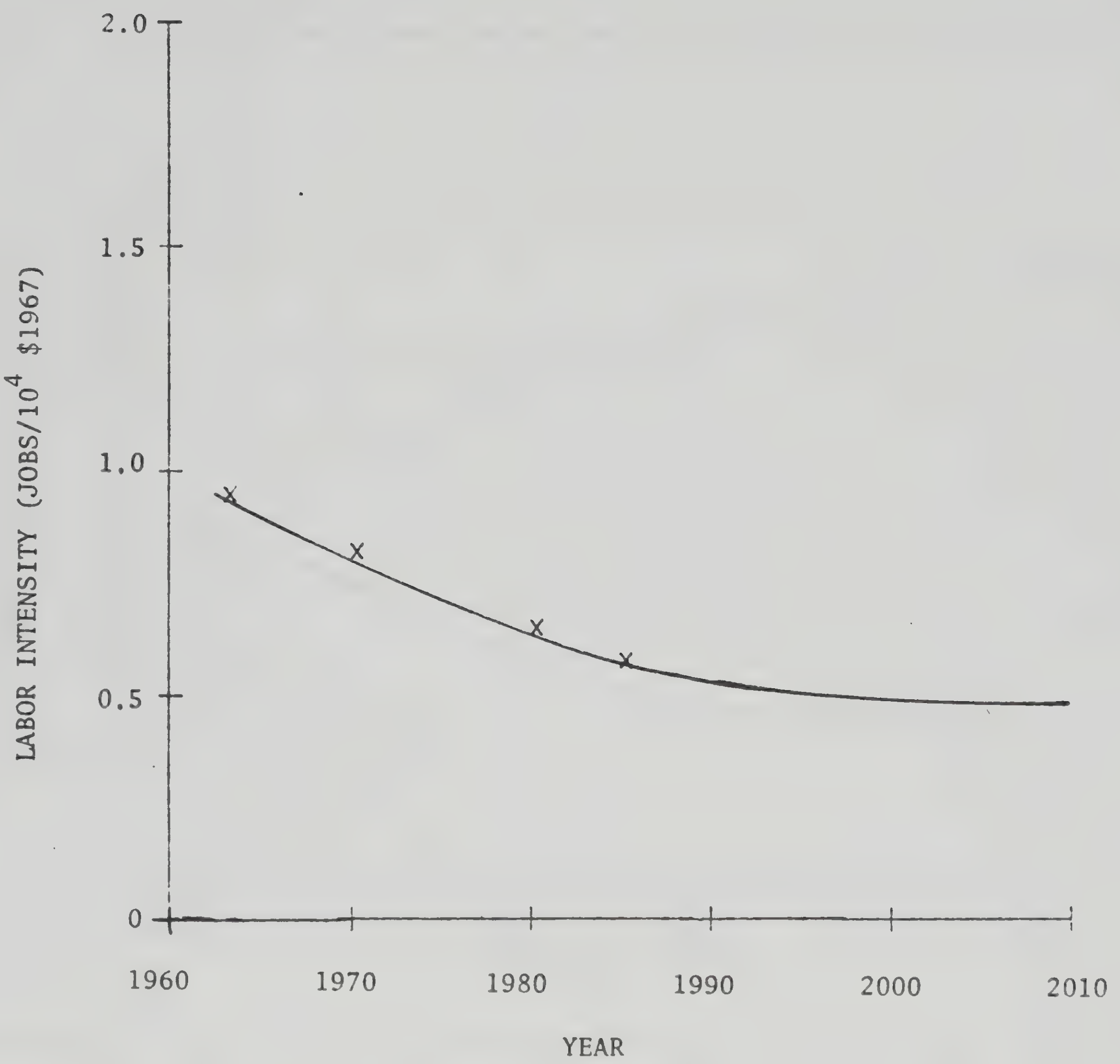

Figure 3v. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 37

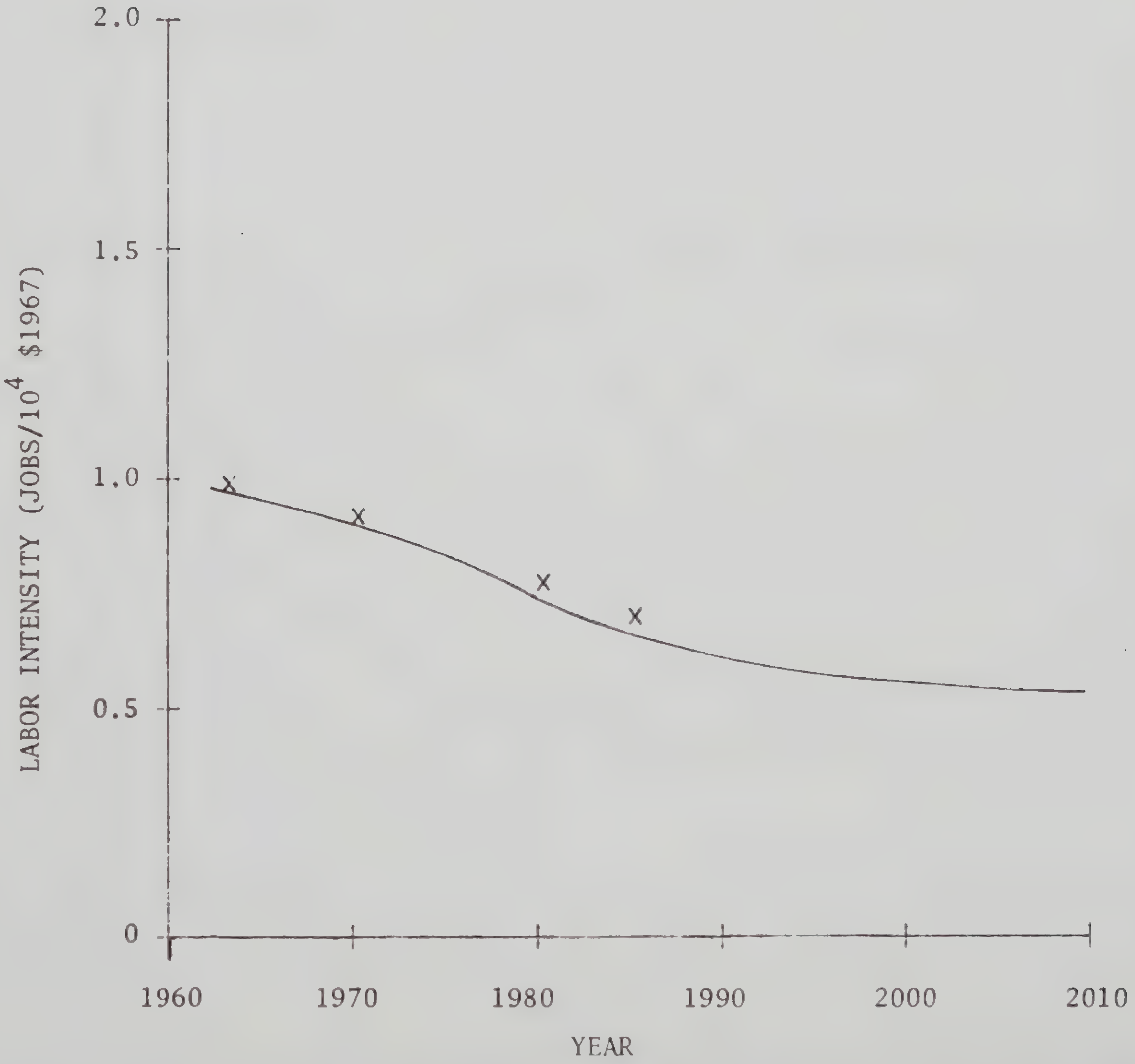

Figure 3w. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 38

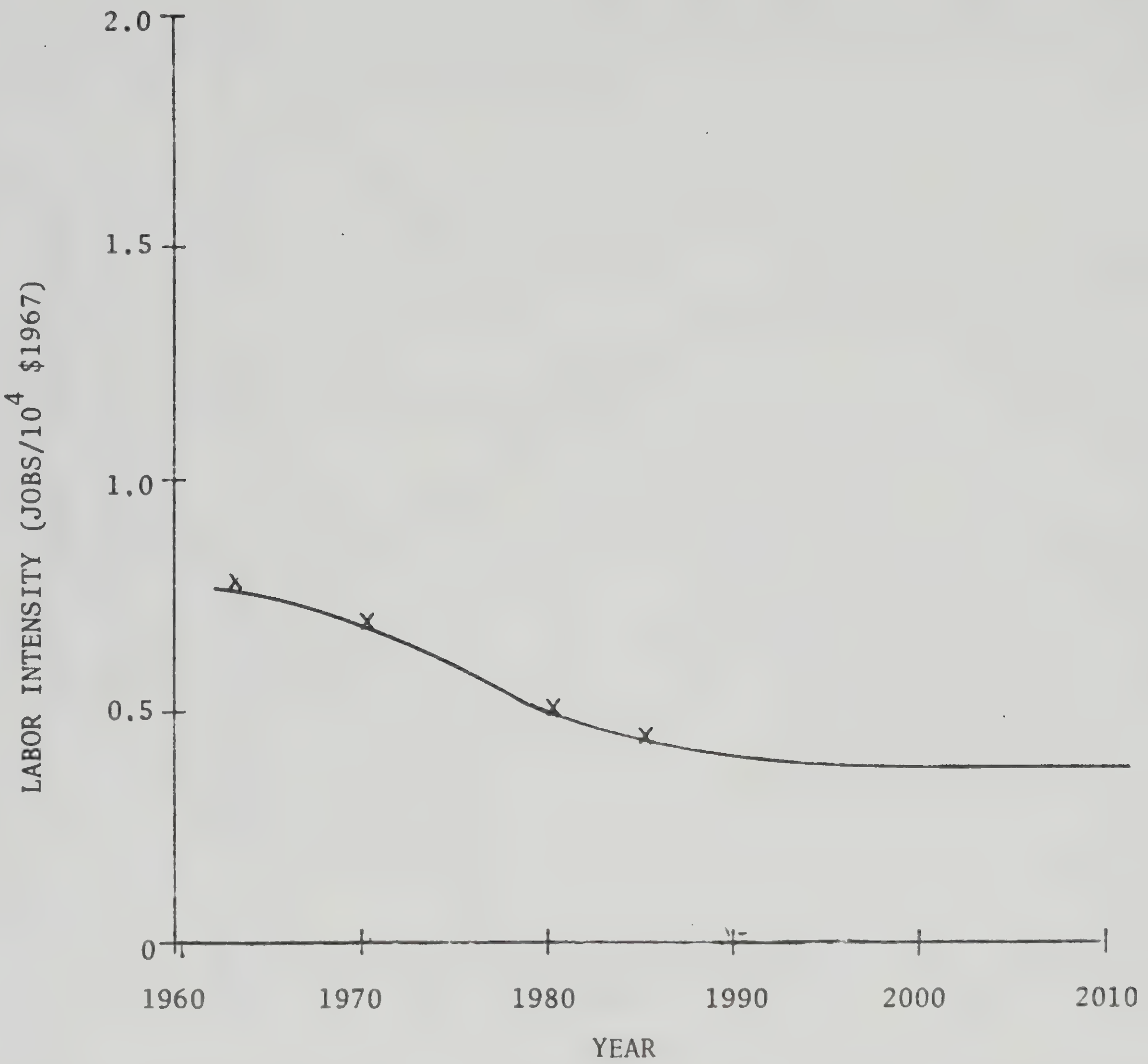

Figure 3x. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 39

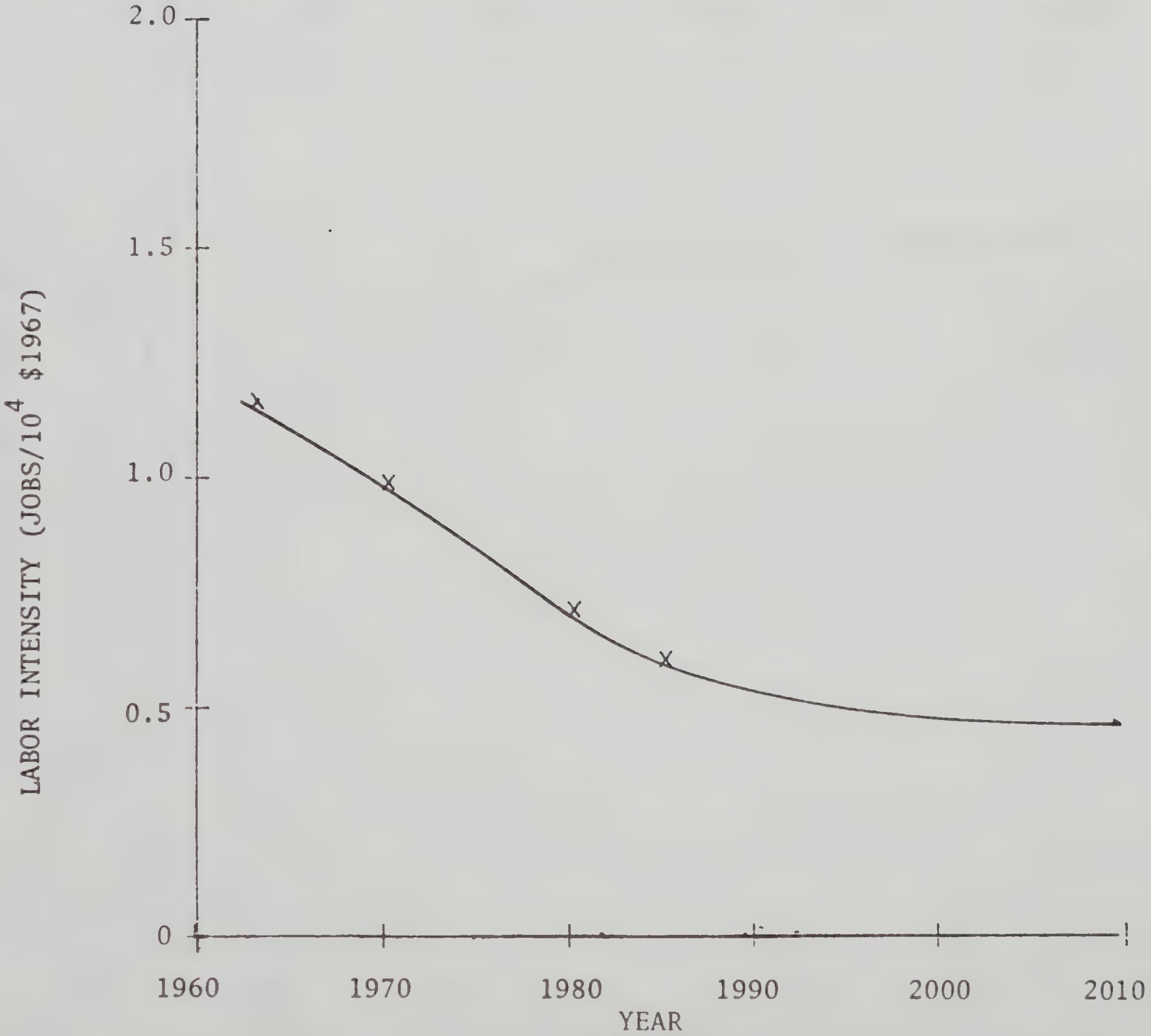

Figure 3y. Projected Labor Intensities for the 40 Sector Economy, 1980-2010

SECTOR 40

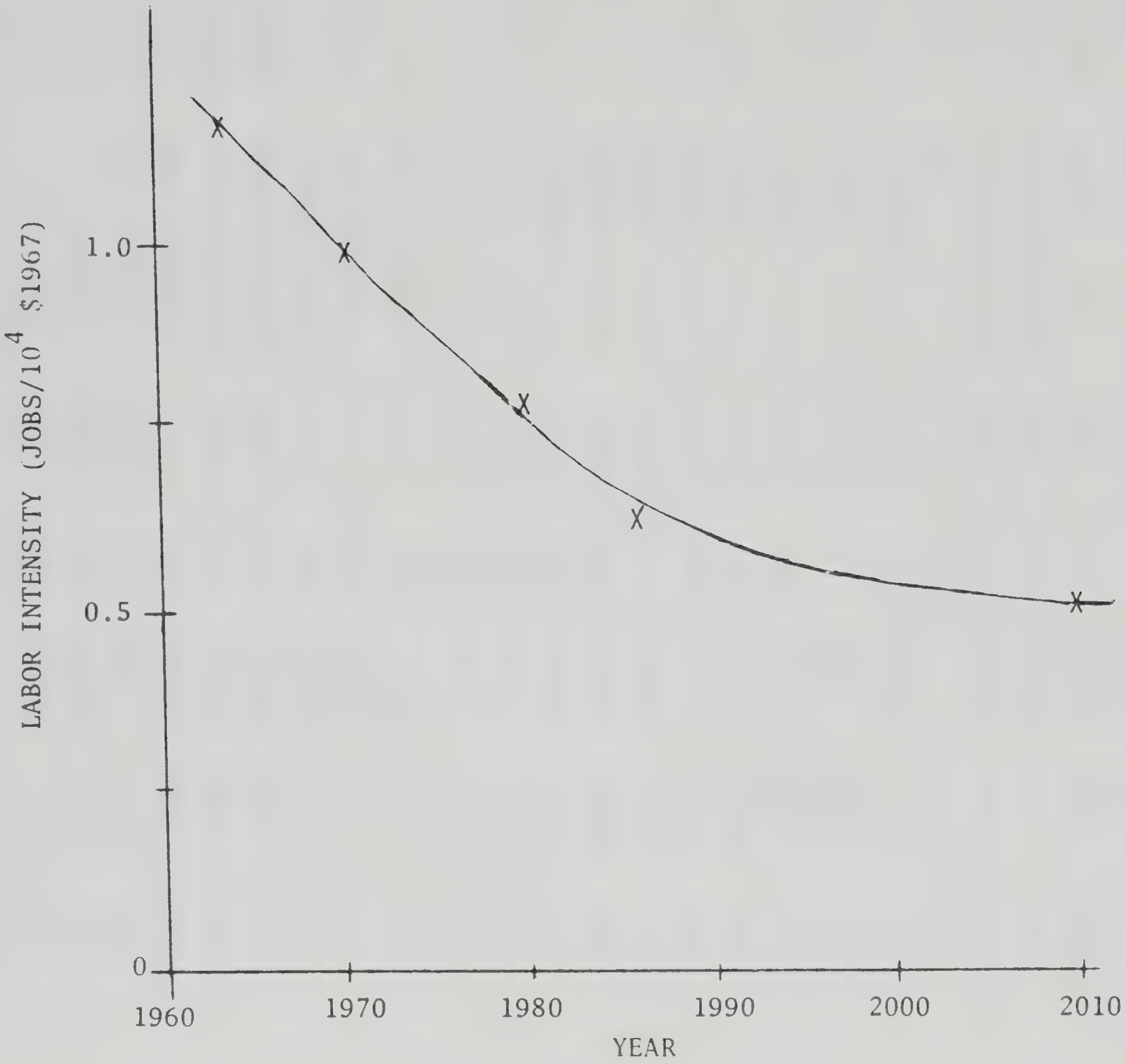

Figure 3z. Projected Labor Intensities for the 40 Sector Economy, 1980-2010.

Average Personal Consumption

(Value at 2010 calculated from data in Figures 3a through 3z and Table 7. See text.)

Table 6. Projected Labor Intensities for 40 Sector Economy 1980-2010
(Corresponding approximately to Scenario B)

Labor Intensity: Jobs per 10^4 1967 Producers' Dollar

Sector	1970	1975	1980	1985	1990	1995	2000	2005	2010
1	.733	0.690	.672	.612	0.605	0.590	0.590	0.590	0.590
2	.387	0.375	.399	.350	0.365	0.365	0.365	0.365	0.365
6	.414	0.380	.382	.336	0.360	0.360	0.360	0.360	0.360
7	.413	0.360	.315	.273	.250	.225	.210	.210	.210
9	.401	0.398	.394	.390	0.390	0.390	0.390	0.390	0.390
21	1.159	1.000	.896	.748	0.700	0.65	0.617	0.583	0.583
22	.550	0.483	.420	.357	0.300	0.292	0.292	0.292	0.292
23	.865	0.842	.788	.721	0.667	0.633	0.617	0.617	0.617
24	.865	0.733	.640	.568	0.500	0.500	0.500	0.500	0.500
25	.797	0.700	.618	.549	0.500	0.467	0.442	0.442	0.442
26	.597	0.500	.445	.382	0.333	0.467	0.450	0.467	0.467
27	.753	0.667	.600	.529	0.467	0.417	0.383	0.367	0.367
28	.780	0.700	.636	.565	0.533	0.500	0.483	0.467	0.467
29	.510	0.492	.502	.435	0.492	0.492	0.492	0.492	0.492
30	.536	0.467	.381	.325	0.292	0.292	0.292	0.292	0.292
31	.799	0.700	.594	.508	0.450	0.408	0.408	0.408	0.408
32	.272	0.333	.510	.428	0.575	0.650	0.717	0.758	0.758
33	.976	0.947	.886	.741	0.632	0.684	0.539	0.539	0.539
34	.905	0.816	.750	.671	0.605	0.553	0.513	0.513	0.513
35	.649	0.539	.436	.392	0.382	0.368	0.368	0.368	0.368
36	.631	0.579	.444	.365	0.355	0.329	0.329	0.329	0.329
37	.802	0.737	.634	.560	0.526	0.493	0.480	0.480	0.480
38	.898	0.829	.754	.680	0.625	0.586	0.553	0.533	0.533
39	.677	0.836	.492	.431	0.421	0.395	0.395	0.395	0.395
40	.973	0.829	.694	.586	0.539	0.500	0.474	0.461	0.461
Avg. PCE	.993	0.813	.719	.625	0.563	0.516	0.500	0.500	0.500

Table 7. Projected Personal Consumption Expenditures and Labor Intensities - 2010

Projected PCE (10^{11} 1967$)	Projected Labor Intensity (Jobs/10^4 1967 $)
0.0	0.590
0.0	0.365
0.0	-
0.0	-
0.0	-
0.02300	0.360
0.01300	0.210
0.0	-
0.04900	0.390
0.09501	0.583
0.00015	0.292
0.0	0.617
0.94169	0.500
0.12391	0.442
0.22059	0.467
0.00980	0.367
0.00755	0.467
0.00011	0.492
0.00045	0.292
0.34465	0.408
0.04827	0.758
0.05839	0.539
0.06422	0.513
0.01098	0.368
0.07286	0.329
2.21203	0.480
4.88365	0.533
0.42947	0.395
0.87876	0.461
Average PCE	0.499

In Figure 3z we have plotted the average labor intensity of personal consumption expenditures (PCE). We used data from the Illinois model, the BLS model, and the 2010 values from Figures 3a through 3y. These later data were combined with the PCE sector derived in the CONAES study (Scenario B) and are shown in Table 7. The data from Figure 3z is also included in Table 6.

5.0 APPLICATION OF THE ENERGY AND LABOR INTENSITIES

To illustrate the application of these data we use the information generated by Hirst [1977] on his simulations of residential energy use. In his simulations, the direct quantity of energy used by fuel type, the dollar cost of this energy, the dollar cost appliance purchases and the dollar cost of home improvement construction for thermal improvements are calculated for the years 1970-2000, for the U.S. economy, with and without the National Energy Plans.

We have used this information to calculate the net total primary energy savings (mine mouth, well head, etc.), for every 5 years from 1975 to 2000. Our basic assumption is that the Gross National Product is not changed by the energy savings programs. The calculations for the direct energy saved include the indirect energy needed to supply that direct energy. Hirst's data included an estimate of the indirect energy cost of electricity and therefore we had to correct for the changing differences in total energy efficiency of electricity production.

We also calculated the total primary energy associated with the more expensive purchase of appliances (sector 40). To illustrate the need to account for the energy used to actually get these appliances from the producer to the consumer, we removed 30 percent of the appliance purchase dollars to the trade sector (sector 37). [Bullard, Penner, Pilati, 1976] The energy cost of the construction improvements was obtained by multiplying that cost by the direct and indirect energy intensity of the construction sector (Table 5, sector 24). The difference between the annual dollars saved by reduced energy use and the annual dollars spent on increased thermal improvements and more efficient appliances is assumed to be spent on average personal consumption. Only in 1980 were the energy savings dollars exceeded by the annual investment costs. In this year, the difference was assumed to come from average personal consumption and consequently represents a further reduction in energy use. The energy intensity of average personal consumption is given in the last line in Table 5.

A set of sectoral price deflators were needed to correct for the difference in the base year for the Hirst data (1975) and the data of Table 5 (1967). A list of these deflators is given in Table 8.

As suggested by Eric Hirst, we chose Scenario B which represents a two fold increase in real energy prices between 1975 and 2010. The results are given in Table 9a through 9e, with the net energy effect summarized in Table 9f.

The determination of the labor impact of the Hirst-NEP program is very similar to that used for the energy impact. The labor impact calculations are given in Tables 10a through 10e and summarized in 10f. The first step is to determine the net dollars saved by reduced energy purchases and to convert these results to 1967 dollars with the deflators given in Table 8. These results are then multiplied by the projected labor intensities given in Table 6, to determine the jobs lost (directly and

Table 8. Dollar Deflators ($\frac{1967}{1975}$) for Energy Intensities of Table 4.

40-Order Sectors	
6	0.435
7	0.565
9	0.637
21	0.614
22	0.676
23	0.531
24	0.545
25	0.612
26	0.593
27	0.610
28	0.586
29	0.503
30	0.571
31	0.630
32	0.635
33	0.587
34	0.607
35	0.802
36	0.930
37	0.616
38	0.643
39	0.675
40	0.723
Average PCE	0.659

Source: Bureau of Labor Statistics.

Table 9a. The Total Energy Effect of the National Energy Plan on Residential Energy Use, 1980: Energy Price Scenario B (+ means energy savings)

(Calculations for 1975 give negligible net energy savings)

CATEGORY (Code)	Without Gov't. Program -	With Gov't. Program =	Net x	Energy Intensity x	Defl. =	Net Primary Energy
Direct Fuel Use (Quads)						
Electricity (9)	9.26	8.84	0.42	3.563/3.370		+0.44
Natural Gas (7)	5.64	5.10	0.54	1.116		+0.60
Oil (6)	2.16	1.94	0.22	1.218		+0.27
Other (16)	0.67	0.66	0.01	1.739		+0.02
						+1.33
Expenditures for: (Billion 1975 $)						
New Equipment (40)	17.43	18.41	-0.98 x .7	.044	.723	-0.02
New Equipment Margin (37)			-0.98 x .3	.031	.616	-0.01
Construction for Thermal Improvements (23)	0.66	4.15	-3.49	.052	.531	-0.10
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	48.83	46.97	-2.61	.076	0.659	+0.13
						-0.00
Net Energy Savings						+1.33 quads

Table 9b. The Total Energy Effect of the National Energy Plan on Residential Energy Use, 1985: Energy Price Scenario B (+ means energy savings)

CATEGORY (Code)	Without Gov't. Program	-	With Gov't. Program	=	Net	x	Energy Intensity	x	Defl.	=	Net Primary Energy
Direct Fuel Use (Quads)											
Electricity (9)	11.27		10.29		0.98		3.481/3.370				+1.01
Natural Gas (7)	5.73		4.68		1.05		1.122				+1.18
Oil (6)	2.14		1.71		0.43		1.224				+0.53
Other (16)	0.58		0.58		0.00		1.746				0.00
											+2.72
Expenditures for: **(Billion 1975 $)**											
New Equipment (40)	18.83		19.88		-1.05 x .7		.043		.723		- 0.02
New Equipment Margin (37)					-1.05 x .3		.030		.616		- 0.01
Construction for Thermal Improvements (23)	0.35		0.77		-0.42		.051		.531		- 0.01
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	59.69		54.93		+3.29		.071		.659		-0.15
											-0.19
Net Energy Savings											+2.53 quads

Table 9c. The Total Energy Effect of the National Energy Plan on Residential Energy Use, 1990: Fuel Price Scenario B (+ means energy savings)

CATEGORY (Code)	Without Gov't. Program -	With Gov't. Program =	Net x	Energy Intensity x	Defl. =	Net Primary Energy
Direct Fuel Use (Quads)						
Electricity (9)	13.23	11.91	1.32	3.399/3.370		+1.33
Natural Gas (7)	5.70	4.52	1.18	1.129		+1.33
Oil (6)	2.17	1.71	0.46	1.231		+0.57
Other (16)	0.51	0.50	0.01	1.754		+0.02
						+3.25
Expenditures for: (Billion 1975 $)						
New Equipment (40)	20.06	21.37	-1.31 x .7	.041	.723	-0.03
New Equipment Margin (37)			-1.31 x .3	.028	.616	-0.01
Construction for Thermal Improvements (23)	0.46	0.87	- .41	.050	.531	-0.01
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	70.90	63.78	+5.40	.066	.659	-0.23
						-0.28
Net Energy Savings						+2.97 quads

Table 9.d. The Total Energy Effect of the National Energy Plan on Residential Energy Use, 1995: Fuel Price Scenario B (+ means energy savings)

CATEGORY (Code)	Without Gov't. Program -	With Gov't. Program =	Net x	Energy Intensity x	Defl. =	Net Primary Energy
Direct Fuel Use (Quads)						
Electricity (9)	15.04	13.20	1.84	3.317/3.370		+1.81
Natural Gas (7)	5.56	4.30	1.26	1.135		+1.43
Oil (6)	2.25	1.71	0.54	1.237		+0.67
Other (16)	0.44	0.43	0.01	1.761		+0.02
						+3.93
Expenditures for: (Billion 1975 $)						
New Equipment (40)	21.14	22.80	-1.66 x .7	.040	.723	-0.05
New Equipment Margin (37)			-1.66 x .3	.027	.616	-0.01
Construction for Thermal Improvements (23)	0.54	0.94	- .40	.052	.531	-0.01
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	81.54	71.43	+8.05	.061	.659	-0.32
						-0.39
Net Energy Savings						+3.54 quads

Table 9e. The Total Energy Effect of the National Energy Plan on Residential Energy Use, 2000: Fuel Price Scenario B (+ means energy savings)

CATEGORY (Code)	Without Gov't. Program	-	With Gov't. Program	=	Net	x	Energy Intensity	x	Defl.	=	Net Primary Energy
Direct Fuel Use (Quads)											
Electricity (9)	16.85		14.43		2.42		3.234/3.370				+2.32
Natural Gas (7)	5.34		4.10		1.24		1.142				+1.42
Oil (6)	2.37		1.72		0.65		1.244				+0.81
Other (16)	0.38		0.36		0.02		1.768				+0.04
											+4.59
Expenditures for: (Billion 1975 $)											
New Equipment (40)	22.14		24.01		-1.87 x .7		.039		.723		-0.04
New Equipment Margin (37)					-1.87 x .3		.026		.616		-0.01
Construction for Thermal Improvements (23)	0.62		1.00		-0.38		.047		.531		-0.01
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	92.48		79.01		+11.22		.057		.659		-0.42
											-0.48
Net Energy Savings											+4.11 quads

Table 9f. Summary of the Net Energy Savings Due to the Effect of the National Energy Plan on Residential Energy Use.

PERIOD	NET ENERGY SAVINGS, QUADS
1970-1975	0
1980	1.3
1985	2.5
1990	3.0
1995	3.5
2000	4.1

Table 10a. The Total Job Effect of the National Energy Plan on Residential Energy Use. 1980 (+ means job increase). (Negligible Impact in 1975.)

CATEGORY (Code)	Without Gov't. Program	-	With Gov't. Program	=	Net	x	Labor Intensity	x	Defl.	=	Net Labor Impact (Jobs)
Direct Fuel Use (Billions 1975$)											
Electricity (9)	27.88		26.62		1.26		.394		.637		- 31,600
Natural Gas (7)	12.27		12.00		0.27		.315		.565		- 4,800
Oil (6)	6.84		6.47		0.37		.382		.435		- 6,100
Other (6)	1.83		1.88		-		.382		.435		-
											- 42,500
Expenditures for: (Billion 1975 $)											
New Equipment (40)	17.43		18.41		-0.98 x .7		.694		.723		+ 34,400
New Equipment Margin (37)					-0.98 x .3		.634		.616		+ 11,500
Construction for Thermal Improvements (23)	0.66		4.15		-3.49		.788		.531		+146,000
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	48.83		46.97		-2.61		.719		.659		-123,700
Net Labor Impact (jobs)											25,700 job increase

Table 10b. The Total Job Effect of the National Energy Plan on Residential Energy Use. 1985 (+ means job increase).

CATEGORY (Code)	Without Gov't. Program	-	With Gov't. Program	=	Net	x	Labor Intensity	x	Defl.	=	Net Labor Impact (Jobs)
Direct Fuel Use (Billions 1975 $)											
Electricity (9)	35.63		32.54		3.09		.390		.637		- 76,800
Natural Gas (7)	14.91		14.02		0.89		.273		.565		- 13,700
Oil (6)	7.39		6.53		0.86		.336		.435		- 12,600
Other (6)	1.76		1.84		0.08		.336		.435		+ 1,200
											-101,900
Expenditures for: (Billion 1975 $)											
New Equipment (40)	18.83		19.88		-1.05 x .7		.586		.723		+ 31,100
New Equipment Margin (37)					-1.05 x .3		.560		.616		+ 10,900
Construction for Thermal Improvements (23)	0.35		0.77		-0.42		.721		.531		+ 16,100
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	59.69		54.93		+3.29		.625		.659		+135,500
Net Labor Impact											+ 91,700 Job Increase

Table 10c. The Total Job Effect of the National Energy Plan on Residential Energy Use. 1990 (+ means job increase).

CATEGORY (Code)	Without Gov't. Program	-	With Gov't. Program	=	Net	x	Labor Intensity	x	Defl.	=	Net Labor Impact (Jobs)
Direct Fuel Use (Billions 1975 $)											
Electricity (9)	43.85		39.49		4.36		.39		.637		-108,300
Natural Gas (7)	17.36		15.87		1.49		.25		.565		- 21,000
Oil (6)	8.03		6.72		1.31		.36		.435		- 20,500
Other (6)	1.66		1.71		.05		.36		.435		+ 800
											-149,000
Expenditures for: (Billion 1975 $)											
New Equipment (40)	20.06		21.37		-1.31 x .7		.539		.723		+ 35,700
New Equipment Margin (37)					-1.31 x .3		.526		.616		+ 12,700
Construction for Thermal Improvements (23)	0.46		0.87		-.41		.667		.531		+ 14,500
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	70.90		63.78		+5.40		.563		.659		+200,300
Net Labor Impact											+114,200 Job Increase

Table 10d. The Total Job Effect of the National Energy Plan on Residential Energy Use. 1995. (+ Means Job Increase).

CATEGORY (Code)	Without Gov't. Program	-	With Gov't. Program	=	Net	x	Labor Intensity	x	Defl.	=	Net Labor Impact (Jobs)
Direct Fuel Use (Billions 1975 $)											
Electricity (9)	51.74		45.42		6.32		.390		.637		-157,000
Natural Gas (7)	19.36		17.40		1.96		.225		.565		- 25,000
Oil (6)	8.90		7.06		1.84		.360		.435		- 28,800
Other (6)	1.54		1.55		-		-		-		-
											-210,800
Expenditures for: (Billion 1975 $)											
New Equipment (40)	21.14		22.80		-1.66 x .7		.500		.723		+ 42,000
New Equipment Margin (37)					-1.66 x .3		.493		.616		+ 15,100
Construction for Thermal Improvements (23)	0.54		0.94		-.40		.633		.531		+ 13,500
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	81.54		71.43		+8.05		.516		.659		+273,700
Net Labor Impact											+133,500 Job Increase

Table 10e. The Total Job Effect of the National Energy Plan on Residential Energy Use. 2000. (+ Means Job Increase).

CATEGORY (Code)	Without Gov't. Program	With Gov't. Program	Net	Labor Intensity	Defl.	Net Labor Impact (Jobs)
Direct Fuel Use (Billions 1975 $)						
Electricity (9)	60.09	51.46	8.63	.390	.637	- 214,400
Natural Gas (7)	21.03	18.70	2.33	.210	.565	- 27,600
Oil (6)	9.95	7.45	2.50	.360	.435	- 39,200
Other (6)	1.41	1.40	-	-	-	-
						- 281,200
Expenditures for: (Billion 1975 $)						
New Equipment (40)	22.14	24.01	-1.87 x .7	.474	.723	+ 44,900
New Equipment Margin (37)			-1.87 x .3	.480	.616	+ 16,600
Construction for Thermal Improvements (23)	0.62	1.00	-0.38	.617	.531	+ 12,500
Net Dollars Spent for Fuel Less Total Energy Saving Expenditures, Spent on Average Personal Consumption	92.48	79.01	+11.22	0.500	.659	+ 369,700
New Labor Impact						+ 162,500 Job Increase

Table 10f. Summary of the Total Labor Impact of the National Energy Plan on Residential Energy Use. (+ Means increase)

Period	Net Labor Impact, Jobs
1970-75	0
1980	+ 25,700
1985	+ 91,700
1990	+ 114,200
1995	+ 133,500
2000	+ 162,500

indirectly) due to reduced energy purchases. A similar procedure is used to determine the new jobs created by new energy saving equipment purchases and by thermal improvement construction. The dollars saved from reduced energy purchases do not equal the dollars spent on energy saving equipment and construction. We assume that this dollar difference will either come from or be spent on average personal consumption. To determine the labor impact of spending of the dollar difference we first convert the saving or expenditure from its 1975 dollar base back to the 1967 dollar base using a deflator appropriate to the origin of the dollars. We multiply the net dollar value by the labor intensity for average personal consumption (bottom line, Table 6 and Figure 8). This calculation yields the job demand of the net dollar savings. Of the years which we examined, only in 1980 did the purchase of energy saving equipment and thermal improvement construction exceed the dollar savings from reduced energy consumption. In this year, overall dollar balance was achieved by reducing average personal consumption by that amount. Thus the 1980 spending pattern produces a reduction in employment (and energy use) from the net respending effect. In all other years studied, dollars were saved and resulted in increased average personal consumption and therefore increased employment (and energy use). The total labor impact of the program, however, was always positive as can be seen in Table 10f.

An examination of the wage structure (BLS Handbook 1974) indicates that during the peak of the construction period, the average U.S. wage would probably rise since construction workers are the highest waged of all workers. Since energy production labor is the next most highly waged labor, the average U.S. wage would probably decline after the construction period. This would probably occur since average waged workers displace the much higher waged energy production workers. During the construction period, the location of the work sites are probably more dispersed when compared with 1975 job site dispersion. We cannot say what happens to job site density after the construction period.

One of the principle criticisms of the analysis used in this report is that it is based on average energy and job intensities when in cases of actual substitution of construction and respending for energy purchases we should use marginal energy and labor intensities. This criticism although not very justified in energy analysis primarily because energy is more nearly a true flow variable, is quite deserved in labor impact analysis, especially in analyzing short term effects. For example, when energy purchases are reduced, does total energy production and labor use reduce proportionately? To the extent that energy producers can find alternative users of their products, overall energy use will not be reduced. This is true because the residential portion of the NEP is mandated and is not caused by a general reaction to higher energy prices. Since the residences which are reacting to the NEP are not completely eliminating fossil energy use their demand for meter readers, billing clerks, office management personnel, etc., will not change. The same number of these occupations per 100,000 homes will still be required. The occupations which are negatively impacted are power plant, refinery and gas pumping station personnel, for example. But our labor intensities include all of the above occupations. However, in the long run, in order to avoid unnecessary price increases due to an increase of overhead costs, energy producers will be required to reduce the number of personnel to its historic relationship with production or increase energy sales. Then the average and marginal labor intensities become (or remain) equal.

Another possible criticism of the procedure used in calculating actual labor impacts in this example is known as the aggregation problem. For example, the 1970 labor intensities for Sector 37 and 40 are 0.802 and 0.973 jobs per 10^4 producers dollars, respectively. These numbers were used as the labor intensity of the Trade and Appliance labor intensities, respectively, in Tables 10. But in a more detailed model (Amado, 1976) the retail trade and refrigerator labor intensities are (for 1967) 0.993 and 1.662, respectively, or in reverse order of magnitude. This problem arises from the fact that Sector 40 not only contains appliance manufacturing but also the very labor intensive activities of clothing, furniture and shoe manufacturing. This is a classic problem with aggregation in the I/O model and can be remedied only in the obvious (and expensive) way.

Not only is it possible that the energy producers could find alternate users of these products and thus frustrate the intent of the NEP residential plan but the consumer might frustrate it as well. It is possible that the consumer will heat or cool residential space which was formerly unheated or uncooled due to the size of his annual energy bill. It is possible that the consumer will expand his residence size with the dollars saved on energy reduction and therefore continue his energy use unabated. It is even possible that the energy producer will encourage such space expansion to maintain their volume of sales. These pernicious effects derive from the condition that the NEP residential program is to a large extent mandated and is not being entirely produced by a general energy price increase. It is our opinion that mandated programs are of overall energy conservation value only if they are appendages to a program of sharply rising primary energy prices. If the energy price rise were due to an energy tax, the revenues would likely be applied to home improvements which are in agreement with the goals of the present residential portion of the National Energy Plan.

We note that in the NEP program, the jobs created as a ratio with the quads of energy saved is about 37-40,000 from 1985 to 2000. This is comparable to Hannon's (1977) estimate (after construction) of 17,000 jobs/quad and with a detailed analysis of a ceiling insulation program which yielded a ratio of 80,000 jobs/quad (Ford, 1978).

Note that in the year 2000 for example, marginal energy prices would have to be (-) $2.70 (1975) per million Btu (weighted to correspond to the types of energy being saved) before the residential NEP would not have been worthwhile. In 1990 marginal energy prices will have to be (-) $1.29 (1975) per million Btu to frustrate the program. In contrast the marginal energy price must be (+) $2.00 (1975) in 1980 to make the program economically feasible. Clearly there is an initial hurdle to clear before the program can be accepted (unless the 1980 expected marginal energy price is greater than or equal to $2.00 per million Btu). Obviously, the present value of all those long term future dollars savings must be greater than the present value of the short term added consumer costs before we should proceed.

6.0 REFERENCES

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APPENDIX A

Matrix F_{AA}: Multiplicative Factors Matrix Under Scenario A

Matrix F_{AB}: Multiplicative Factors Matrix Under Scenario B

Matrix F_{AC}: Multiplicative Factors Matrix Under Scenario C

Matrix F_{AD}: Multiplicative Factors Matrix Under Scenario D

MATRIX F_{AA}

	1	2	3	4	5	6	7	8	9	10
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.1767	1.0000
2	1.0000	3.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7172	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AA} (Continued)

	1	2	3	4	5	6	7	8	9	10
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
26	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AA} (Continued)

	11	12	13	14	15	16	17	18	19	20
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AA} (Continued)

	11	12	13	14	15	16	17	18	19	20
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
26	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AA} (Continued)

	21	22	23	24	25	26	27	28	29	30
1	1.0000	1.0000	1.0000	0.4045	1.0573	1.7644	2.3158	1.0399	0.8900	5.4500
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	0.7771	1.0000	1.0000	0.5360	0.3911	1.8233	2.7964	0.7860	0.3061	0.2600
7	1.7408	1.0000	1.0000	0.3537	0.1526	0.0365	0.2897	0.0483	0.0793	0.2500
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.5145	1.0000	1.0000	0.8631	0.3149	0.3366	0.8951	0.9195	0.3077	0.4400
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	0.5800	1.0000	1.0000	1.1200	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	0.5800	1.0000	1.0000	1.1200	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AA} (Continued)

	21	22	23	24	25	26	27	28	29	30
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	0.7500	0.9100	1.0000	1.0000	1.0000	1.0000	1.0000
26	2.0000	1.0000	2.0000	0.7500	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	0.7500	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	0.8500	0.7500	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600	1.1600
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AA} (Continued)

	31	32	33	34	35	36	37	38	39	40
1	1.5100	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	1.5100	1.5100
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	0.2500	0.8500	0.4500	0.5600	1.0000	0.4200	0.0600	0.0600	0.2500	0.2500
7	0.3300	1.0000	1.0000	1.0000	1.0000	1.0000	0.3200	0.3200	0.3300	0.3300
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.2000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7400	0.7400	1.2000	1.2000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AA} (Continued)

	31	32	33	34	35	36	37	38	39	40
21	2.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.2000
22	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
23	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
24	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
25	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	0.8000
26	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	4.2100	0.8000
27	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
28	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
29	0.9300	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.4111	0.8000
30	0.8418	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	3.0000	0.8000
31	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
32	1.1600	1.0556	0.5800	0.9280	1.1600	0.8120	1.1600	1.1600	0.9280	1.1600
33	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
34	0.9000	0.8190	0.4500	0.7200	0.9000	0.6300	0.9000	0.9000	0.7200	0.9000
35	0.7200	0.6552	0.3600	0.5760	0.7200	0.5040	0.7200	0.7200	0.5760	0.7200
36	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
37	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
38	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
39	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000
40	1.0000	0.9100	0.5000	0.8000	1.0000	0.7000	1.0000	1.0000	0.8000	1.0000

MATRIX F_{AB}

	1	2	3	4	5	6	7	8	9	10
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.1767	1.0000
2	1.0000	3.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7172	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AB} (Continued)

	1	2	3	4	5	6	7	8	9	10
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
26	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AB} (Continued)

	11	12	13	14	15	16	17	18	19	20
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AB} (Continued)

	11	12	13	14	15	16	17	18	19	20
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
26	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AB} (Continued)

	21	22	23	24	25	26	27	28	29	30
1	1.0000	1.0000	1.0000	0.4651	1.2171	1.9890	2.3158	1.0399	0.9100	6.4100
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0019	1.0000	1.0000	1.2222	0.4444	1.6491	3.6354	1.0480	0.8007	0.3700
7	1.7408	1.0000	1.0000	0.3537	0.1596	0.0336	0.2897	0.0725	0.1037	0.2900
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.9688	1.0000	1.0000	0.9926	0.4093	0.3776	0.8951	1.1034	0.3384	0.5900
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	0.7000	1.0000	1.0000	1.1300	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	0.7000	1.0000	1.0000	1.1300	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AB} (Continued)

	21	22	23	24	25	26	27	28	29	30
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	0.8700	0.9400	1.0000	1.0000	1.0000	1.0000	1.0000
26	2.0000	1.0000	2.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	0.8700	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	0.9000	0.8670	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300	1.0300
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AB} (Continued)

	31	32	33	34	35	36	37	38	39	40
1	2.3000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	2.3000	2.3000
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	0.3700	0.9600	0.5400	0.8200	1.0000	0.4500	0.2400	0.2400	0.3700	0.3700
7	0.3300	1.0000	1.0000	1.0000	1.0000	1.0000	0.2700	0.2700	0.3300	0.3300
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.4300	1.0000	1.0000	1.0000	1.0000	1.0000	1.0300	1.0300	1.4300	1.4300
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AB} (Continued)

	31	32	33	34	35	36	37	38	39	40
21	1.5000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.1000
22	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
23	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
24	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
25	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	0.9000
26	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	3.1700	0.9000
27	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
28	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
29	0.9650	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.6407	0.9000
30	0.9209	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	2.3700	0.9000
31	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
32	1.0900	1.0573	0.6540	0.9483	1.0900	0.8175	1.0900	1.0900	0.9810	1.0900
33	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
34	1.0300	0.9991	0.6180	0.8961	1.0300	0.7725	1.0300	1.0300	0.9270	1.0300
35	0.7200	0.6984	0.4320	0.6264	0.7200	0.5400	0.7200	0.7200	0.6480	0.7200
36	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
37	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
38	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
39	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000
40	1.0000	0.9700	0.6000	0.8700	1.0000	0.7500	1.0000	1.0000	0.9000	1.0000

MATRIX F_{AC}

	1	2	3	4	5	6	7	8	9	10
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.1767	1.0000
2	1.0000	3.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7172	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AC} (Continued)

	1	2	3	4	5	6	7	8	9	10
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
26	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AC} (Continued)

	11	12	13	14	15	16	17	18	19	20
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AC} (Continued)

	11	12	13	14	15	16	17	18	19	20
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
26	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AC} (Continued)

	21	22	23	24	25	26	27	28	29	30
1	1.0000	1.0000	1.0000	0.5460	1.3616	2.3923	2.3158	1.1826	0.9200	8.9000
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.1485	1.0000	1.0000	1.7797	0.5333	1.3737	4.1947	1.5720	1.1539	0.4300
7	1.7408	1.0000	1.0000	0.3537	0.1665	0.0311	0.2897	0.1209	0.1342	0.3300
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	2.2717	1.0000	1.0000	1.1652	0.5353	0.3953	1.1189	1.2874	0.3692	0.7800
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	0.8000	1.0000	1.0000	1.1300	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	0.8000	1.0000	1.0000	1.1300	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AC} (Continued)

	21	22	23	24	25	26	27	28	29	30
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	0.9800	0.9800	1.0000	1.0000	1.0000	1.0000	1.0000
26	2.0000	1.0000	2.0000	1.2500	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	0.9800	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	0.9500	0.9830	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100	1.0100
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800	1.1800
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AC} (Continued)

	31	32	33	34	35	36	37	38	39	40
1	2.9600	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	2.9600	2.9600
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	0.4300	1.0200	0.6800	0.9500	1.0000	0.5000	0.3000	0.3000	0.4300	0.4300
7	0.4200	1.0000	1.0000	1.0000	1.0000	1.0000	0.1200	0.1200	0.4200	0.4200
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.6000	1.0000	1.0000	1.0000	1.0000	1.0000	1.2900	1.2900	1.6000	1.6000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AC} (Continued)

	31	32	33	34	35	36	37	38	39	40
21	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
26	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	2.1400	1.0000
27	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	0.8704	1.0000
30	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.7300	1.0000
31	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
32	1.0100	1.0100	0.7575	0.9090	1.0100	0.8383	1.0100	1.0100	1.0100	1.0100
33	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
34	1.1800	1.1800	0.8850	1.0620	1.1800	0.9794	1.1800	1.1800	1.1800	1.1800
35	0.7200	0.7200	0.5400	0.6480	0.7200	0.5976	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	0.7500	0.9000	1.0000	0.8300	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AD}

	1	2	3	4	5	6	7	8	9	10
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.1767	1.0000
2	1.0000	3.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7172	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AD} (Continued)

	1	2	3	4	5	6	7	8	9	10
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
26	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AD} (Continued)

	11	12	13	14	15	16	17	18	19	20
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
7	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AD} (Continued)

	11	12	13	14	15	16	17	18	19	20
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
26	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AD} (Continued)

	21	22	23	24	25	26	27	28	29	30
1	1.0000	1.0000	1.0000	0.6067	1.4453	2.6978	2.3158	1.2846	0.9500	9.1700
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	1.1485	1.0000	1.0000	2.3371	0.6222	1.2719	4.4743	2.0959	1.2717	0.4600
7	1.7408	1.0000	1.0000	0.3537	0.1734	0.0282	0.2897	0.1692	0.1464	0.3600
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	2.2717	1.0000	1.0000	1.2946	0.6297	0.4182	1.1189	1.4713	0.3692	0.8000
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	0.8800	1.0000	1.0000	1.1300	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	0.8800	1.0000	1.0000	1.1300	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AD} (Continued)

	21	22	23	24	25	26	27	28	29	30
21	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
23	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
25	1.0000	1.0000	1.0000	1.1000	1.0100	1.0000	1.0000	1.0000	1.0000	1.0000
26	2.0000	1.0000	2.0000	1.5000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
27	1.0000	1.0000	1.0000	1.1000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
28	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
29	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
30	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
31	1.0000	1.0000	1.0000	1.1000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
32	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
33	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
34	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500	1.3500
35	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200	0.7200
36	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
37	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
39	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AD} (Continued)

	31	32	33	34	35	36	37	38	39	40
1	3.3100	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	3.3100	3.3100
2	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
6	0.4600	1.0800	0.9000	1.0000	1.0000	0.8000	0.3800	0.3800	0.4600	0.4600
7	0.4700	1.0000	1.0000	1.0000	1.0000	1.0000	0.1500	0.1500	0.4700	0.4700
8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
9	1.6700	1.0000	1.0000	1.0000	1.0000	1.0000	1.4800	1.4800	1.6700	1.6700
10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
12	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
14	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
17	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
18	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

MATRIX F_{AD} (Continued)

	31	32	33	34	35	36	37	38	39	40
21	0.5000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	0.9000
22	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
23	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
24	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
25	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.1000
26	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.1000
27	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
28	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
29	1.0350	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.1000
30	1.0791	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.1000
31	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
32	0.9200	0.9476	0.9200	0.8556	0.9200	0.9200	0.9200	0.9200	1.0120	0.9200
33	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
34	1.3500	1.3905	1.3500	1.2555	1.3500	1.3500	1.3500	1.3500	1.4850	1.3500
35	0.7200	0.7416	0.7200	0.6696	0.7200	0.7200	0.7200	0.7200	0.7920	0.7200
36	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
37	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
38	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
39	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000
40	1.0000	1.0300	1.0000	0.9300	1.0000	1.0000	1.0000	1.0000	1.1000	1.0000

APPENDIX B

Matrix A_{FA}: Projected A Matrix for 2010 Under Scenario A

Matrix A_{FB}: Projected A Matrix for 2010 Under Scenario B

Matrix A_{FC}: Projected A Matrix for 2010 Under Scenario C

Matrix A_{FD}: Projected A Matrix for 2010 Under Scenario D

MATRIX A_{FA}

	1	2	3	4	5	6	7	8	9	10
1	0.0008	0.0000	0.0000	1.6200	1.6970	0.0015	0.0008	2.1087	2.5001	0.0000
2	0.0000	0.0741	0.0000	0.0000	0.0000	1.0002	1.0002	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0012	0.0006	0.0000	0.0000	0.0000	0.0623	0.0008	0.0000	0.2000	0.0000
7	0.0001	0.0189	0.0064	0.0332	0.0005	0.0418	0.0334	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1484	0.0000	0.0000
9	0.0001	0.0008	0.0000	0.0000	0.0000	0.0022	0.0003	0.0000	0.0880	0.0000
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0880
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0004	0.0001	0.0000	0.0000	0.0000	0.0010	0.0000	0.0009
16	0.0000	0.0000	0.0032	0.0000	0.0645	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0004
18	0.0000	0.0000	0.0000	0.0011	0.0002	0.0000	0.0000	0.0131	0.0000	0.0104
19	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000	0.0000	0.0009	0.0000	0.0008
20	0.0000	0.0000	0.0007	0.0025	0.0022	0.0000	0.0000	0.0043	0.0000	0.0036

MATRIX A_{FA} (Continued)

	1	2	3	4	5	6	7	8	9	10
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0002	0.0000	0.0000	0.0175	0.0000	0.0001	0.0000	0.0003	0.0003	0.0003
23	0.0016	0.0119	0.0048	0.0235	0.0121	0.0155	0.0144	0.1893	0.2294	0.1259
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0000	0.0004	0.0004	0.0004
25	0.0000	0.0000	0.0000	0.0021	0.0002	0.0031	0.0004	0.0132	0.0110	0.0115
26	0.0052	0.0052	0.0005	0.0063	0.0445	0.0325	0.0000	0.0126	0.0146	0.7604
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0004
28	0.0008	0.0021	0.0007	0.0001	0.0000	0.0002	0.0000	0.0003	0.0002	0.0002
29	0.0029	0.0030	0.0000	0.0002	0.0000	0.0001	0.0000	0.0055	0.0052	0.0052
30	0.0005	0.0000	0.0000	0.0004	0.0000	0.0018	0.0000	0.0033	0.0026	0.0026
31	0.0155	0.0142	0.0190	0.0016	0.0262	0.0091	0.0000	0.0351	0.0316	0.0552
32	0.0012	0.0007	0.0002	0.0021	0.0008	0.0019	0.0001	0.0248	0.1533	0.0311
33	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0005	0.0004	0.0001	0.0010	0.0006	0.0050	0.0001	0.0009	0.0337	0.0027
35	0.0001	0.0001	0.0001	0.0013	0.0000	0.0105	0.0000	0.0022	0.0123	0.0027
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001
37	0.0046	0.0033	0.0018	0.0024	0.0057	0.0084	0.0016	0.0603	0.0441	0.0557
38	0.0198	0.0725	0.0064	0.0895	0.0976	0.1065	0.0402	0.2070	0.1808	0.2074
39	0.0000	0.0000	0.0000	0.0000	0.0009	0.0001	0.0000	0.0014	0.0013	0.0013
40	0.0004	0.0001	0.0000	0.0003	0.0000	0.0001	0.0002	0.0025	0.0024	0.0033

MATRIX A_{FA} (Continued)

	11	12	13	14	15	16	17	18	19	20
1	0.0000	0.0000	1.4925	0.0243	0.0000	0.2130	0.0000	0.1882	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.7344	5.0000	0.3114	0.0779	0.5827	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.2499	0.0000	0.9718	1.1915	0.5699	0.0491	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.1639	0.0115	0.2903	0.8113
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0013	0.0001	0.0023	0.0063
11	0.0900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0882	0.0000	0.0000	0.0000	0.0031	0.0368	0.0026	0.0653	0.1824
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.0010	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0006	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0131	0.0109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0009	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0043	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FA} (Continued)

	11	12	13	14	15	16	17	18	19	20
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.1277	0.1582	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0119	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.8617	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0052	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0026	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0616	0.0318	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0326	0.0229	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0030	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0028	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
37	0.0583	0.0437	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
38	0.2185	0.1757	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
39	0.0013	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	0.0034	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FA} (Continued)

	21	22	23	24	25	26	27	28	29	30
1	0.0006	0.0034	0.0000	0.0011	0.0122	0.0261	0.0056	0.034[illegible]	0.0050	0.0284
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0024	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0182	0.0121	0.0034	0.0014	0.0041	0.0084	0.0112	0.0096	0.0031	0.0010
7	0.0011	0.0374	0.0002	0.0022	0.0021	0.0011	0.0168	0.0025	0.0030	0.0073
8	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0011	0.0086	0.0001	0.0011	0.0011	0.0027	0.0045	0.0048	0.0023	0.0073
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0650	0.0006
14	0.0002	0.0000	0.0052	0.0000	0.0001	0.0343	0.0000	0.0000	0.0000	0.0000
15	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FA} (Continued)

	21	22	23	24	25	26	27	28	29	30
21	0.0000	0.0000	0.0025	0.3733	0.0000	0.0027	0.0000	0.0000	0.0000	0.0000
22	0.0031	0.0000	0.0090	0.0002	0.0026	0.0201	0.0135	0.0898	0.0693	0.1059
23	0.0139	0.0127	0.0000	0.0035	0.0071	0.0073	0.0092	0.0103	0.0123	0.0072
24	0.0856	0.0000	0.0000	0.0000	0.0037	0.0132	0.0000	0.0006	0.0000	0.0003
25	0.0037	0.0053	0.0029	0.0318	0.0000	0.0354	0.0660	0.0278	0.0013	0.0048
26	0.1226	0.0452	0.0623	0.0150	0.0601	0.0000	0.0589	0.0454	0.0185	0.0425
27	0.0001	0.0000	0.0025	0.0103	0.0001	0.0055	0.0000	0.0003	0.0001	0.0001
28	0.0006	0.0244	0.0667	0.0000	0.0010	0.0047	0.0185	0.0000	0.0047	0.0041
29	0.0000	0.0301	0.0170	0.0002	0.0014	0.0039	0.0000	0.0110	0.0000	0.0351
30	0.0001	0.0023	0.0020	0.0001	0.0020	0.0089	0.0082	0.0027	0.0362	0.0000
31	0.0167	0.0546	0.1699	0.0288	0.0742	0.0561	0.0217	0.0512	0.0924	0.1029
32	0.0092	0.0083	0.0104	0.0123	0.0216	0.0170	0.0192	0.0280	0.0376	0.0298
33	0.0003	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0144	0.0028	0.0136	0.0193	0.0109	0.0099	0.0099	0.0344	0.0140	0.0146
35	0.0013	0.0007	0.0006	0.0015	0.0008	0.0018	0.0004	0.0028	0.0053	0.0010
36	0.0001	0.0000	0.0002	0.0001	0.0001	0.0002	0.0001	0.0000	0.0001	0.0003
37	0.0659	0.0194	0.0798	0.0440	0.0386	0.0376	0.0293	0.0286	0.0352	0.0724
38	0.1246	0.1265	0.0771	0.0747	0.1286	0.1423	0.0766	0.0822	0.0593	0.0710
39	0.0003	0.0011	0.0000	0.0001	0.0000	0.0008	0.0041	0.0000	0.0051	0.0047
40	0.0049	0.0032	0.0109	0.0021	0.0070	0.0157	0.0084	0.0080	0.0016	0.0036

MATRIX A_{FA} (Continued)

	31	32	33	34	35	36	37	38	39	40
1	0.0023	0.0025	0.0004	0.0010	0.0031	0.0003	0.0000	0.0006	0.0040	0.0014
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0006	0.0387	0.0170	0.0149	0.1563	0.0612	0.0006	0.0003	0.0002	0.0003
7	0.0012	0.0018	0.0009	0.0007	0.0010	0.0011	0.0014	0.0015	0.0005	0.0006
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0023	0.0003	0.0025	0.0001	0.0006	0.0003	0.0014	0.0016	0.0017	0.0011
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
14	0.0000	0.0005	0.0004	0.0003	0.0016	0.0015	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FA} (Continued)

	31	32	33	34	35	36	37	38	39	40
21	0.0334	0.0002	0.0000	0.0019	0.0000	0.0006	0.0009	0.0102	0.0000	0.0408
22	0.0002	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0002	0.0000	0.0001
23	0.0044	0.0827	0.0056	0.0029	0.0156	0.0017	0.0033	0.0366	0.0027	0.0021
24	0.0003	0.0001	0.0000	0.0000	0.0009	0.0147	0.0056	0.0122	0.0000	0.0004
25	0.0118	0.0037	0.0014	0.0028	0.0030	0.0015	0.0123	0.0456	0.0027	0.0180
26	0.0403	0.0045	0.0075	0.0112	0.0102	0.0028	0.0082	0.0131	0.1575	0.0529
27	0.0044	0.0006	0.0018	0.0001	0.0036	0.0002	0.0008	0.0066	0.0092	0.0017
28	0.0060	0.0001	0.0001	0.0001	0.0056	0.0000	0.0010	0.0016	0.0025	0.0021
29	0.1009	0.0151	0.0014	0.0001	0.0136	0.0001	0.0002	0.0003	0.0413	0.0115
30	0.0404	0.0013	0.0000	0.0000	0.0128	0.0000	0.0003	0.0002	0.0654	0.0103
31	0.0000	0.0264	0.0083	0.0033	0.1173	0.0347	0.0126	0.0245	0.1857	0.2487
32	0.0072	0.0000	0.0007	0.0092	0.0040	0.0009	0.0006	0.0047	0.0112	0.0049
33	0.0000	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0041	0.0000	0.0000
34	0.0062	0.0051	0.0035	0.0000	0.0268	0.0048	0.0061	0.0040	0.0067	0.0062
35	0.0003	0.0006	0.0004	0.0008	0.0000	0.0010	0.0002	0.0003	0.0002	0.0002
36	0.0002	0.0028	0.0000	0.0000	0.0002	0.0000	0.0001	0.0119	0.0009	0.0002
37	0.0383	0.0111	0.0182	0.0496	0.0218	0.0225	0.0000	0.0259	0.0236	0.0346
38	0.0855	0.0961	0.0471	0.1144	0.2165	0.1099	0.1828	0.0000	0.0495	0.0728
39	0.0082	0.0000	0.0008	0.0033	0.0000	0.0000	0.0006	0.0048	0.0000	0.0011
40	0.0149	0.0032	0.0011	0.0017	0.0143	0.0012	0.0032	0.0091	0.0203	0.0000

MATRIX A_{FB}

	1	2	3	4	5	6	7	8	9	10
1	0.0008	0.0000	0.0000	1.4200	1.6970	0.0010	0.0008	2.1087	2.5001	0.0000
2	0.0003	0.0741	0.0000	0.0000	0.0000	1.0002	1.0002	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0012	0.0006	0.0000	0.0000	0.0000	0.0623	0.0008	0.0000	0.2000	0.0000
7	0.0001	0.0139	0.0064	0.0332	0.0000	0.0418	0.0334	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1484	0.0000	0.0000
9	0.0001	0.0008	0.0000	0.0000	0.0000	0.0022	0.0003	0.0000	0.0880	0.0000
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0880
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0004	0.0001	0.0000	0.0000	0.0000	0.0010	0.0000	0.0009
16	0.0000	0.0000	0.0032	0.0000	0.0645	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0004
18	0.0000	0.0000	0.0000	0.0011	0.0002	0.0000	0.0000	0.0131	0.0000	0.0109
19	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000	0.0000	0.0004	0.0000	0.0008
20	0.0000	0.0000	0.0007	0.0025	0.0022	0.0000	0.0000	0.0043	0.0000	0.0036

MATRIX A_{FB} (Continued)

	1	2	3	4	5	6	7	8	9	10
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0002	0.0000	0.0000	0.0175	0.0000	0.0001	0.0000	0.0003	0.0003	0.0003
23	0.0016	0.0119	0.0048	0.0235	0.0121	0.0155	0.0144	0.1893	0.2294	0.1259
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0000	0.0004	0.0004	0.0004
25	0.0000	0.0000	0.0000	0.0021	0.0002	0.0031	0.0004	0.0132	0.0110	0.0115
26	0.0052	0.0052	0.0005	0.0063	0.0485	0.0325	0.0000	0.0126	0.0146	0.7604
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0004
28	0.0003	0.0021	0.0007	0.0001	0.0000	0.0002	0.0000	0.0003	0.0002	0.0002
29	0.0029	0.0030	0.0000	0.0002	0.0000	0.0001	0.0000	0.0055	0.0052	0.0052
30	0.0005	0.0000	0.0000	0.0004	0.0000	0.0018	0.0000	0.0035	0.0026	0.0026
31	0.0155	0.0142	0.0190	0.0016	0.0262	0.0091	0.0000	0.0351	0.0316	0.0552
32	0.0012	0.0006	0.0002	0.0020	0.0007	0.0018	0.0001	0.0233	0.1441	0.0293
33	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0006	0.0005	0.0001	0.0011	0.0007	0.0058	0.0001	0.0010	0.0385	0.0030
35	0.0001	0.0001	0.0001	0.0013	0.0000	0.0105	0.0000	0.0022	0.0123	0.0027
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001
37	0.0046	0.0033	0.0018	0.0024	0.0057	0.0084	0.0016	0.0603	0.0441	0.0557
38	0.0193	0.0725	0.0064	0.0895	0.0976	0.1065	0.0402	0.2070	0.1808	0.2074
39	0.0000	0.0000	0.0000	0.0000	0.0009	0.0001	0.0000	0.0014	0.0013	0.0013
40	0.0004	0.0001	0.0000	0.0003	0.0000	0.0001	0.0002	0.0025	0.0024	0.0033

MATRIX A_{FB} (Continued)

	11	12	13	14	15	16	17	18	19	20
1	0.0000	0.0000	1.4925	0.0243	0.0000	0.2130	0.0000	0.1882	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.7344	5.0000	0.3114	0.0779	0.5827	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.2499	0.0000	0.9718	1.1915	0.5699	0.0491	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.1639	0.0115	0.2903	0.8113
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0013	0.0001	0.0023	0.0063
11	0.0900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0882	0.0000	0.0000	0.0000	0.0031	0.0368	0.0026	0.0653	0.1824
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.0010	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0006	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0131	0.0109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0009	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0043	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FB} (Continued)

	11	12	13	14	15	16	17	18	19	20
21	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.1277	0.1582	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0119	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.8617	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0052	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0026	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0616	0.0518	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0507	0.0215	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0034	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0028	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
37	0.0583	0.0437	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
38	0.2185	0.1757	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
39	0.0013	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	0.0034	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FB} (Continued)

	21	22	23	24	25	26	27	28	29	30
1	0.0006	0.0034	0.0000	0.0013	0.0140	0.0294	0.0056	0.0340	0.0051	0.0334
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0024	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0235	0.0121	0.0034	0.0031	0.0046	0.0076	0.0146	0.0129	0.0081	0.0015
7	0.0011	0.0374	0.0002	0.0022	0.0022	0.0010	0.0168	0.0038	0.0040	0.0084
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0015	0.0086	0.0001	0.0013	0.0014	0.0030	0.0045	0.0058	0.0025	0.0098
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0650	0.0000
14	0.0002	0.0000	0.0062	0.0000	0.0001	0.0346	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FB} (Continued)

	21	22	23	24	25	26	27	28	29	30
21	0.0000	0.0000	0.0025	0.3733	0.0000	0.0027	0.0000	0.0000	0.0000	0.0000
22	0.0031	0.0000	0.0090	0.0002	0.0026	0.0201	0.0135	0.0898	0.0693	0.1059
23	0.0139	0.0127	0.0000	0.0035	0.0071	0.0073	0.0092	0.0103	0.0123	0.0072
24	0.0856	0.0000	0.0000	0.0000	0.0037	0.0132	0.0000	0.0006	0.0000	0.0008
25	0.0037	0.0053	0.0029	0.0369	0.0000	0.0354	0.0660	0.0279	0.0013	0.0049
26	0.1226	0.0452	0.0623	0.0200	0.0601	0.0000	0.0589	0.0454	0.0185	0.0425
27	0.0001	0.0000	0.0025	0.0120	0.0001	0.0055	0.0000	0.0003	0.0001	0.0001
28	0.0006	0.0244	0.0667	0.0000	0.0010	0.0047	0.0185	0.0000	0.0047	0.0041
29	0.0000	0.0301	0.0170	0.0002	0.0014	0.0039	0.0000	0.0110	0.0000	0.0351
30	0.0001	0.0023	0.0020	0.0001	0.0026	0.0089	0.0082	0.0027	0.0362	0.0000
31	0.0167	0.0546	0.1795	0.0333	0.0742	0.0561	0.0217	0.0512	0.0924	0.1029
32	0.0086	0.0078	0.0098	0.0116	0.0203	0.0160	0.0180	0.0263	0.0354	0.0280
33	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0165	0.0032	0.0155	0.0221	0.0125	0.0113	0.0113	0.0394	0.0161	0.0168
35	0.0013	0.0007	0.0006	0.0015	0.0008	0.0018	0.0004	0.0028	0.0053	0.0010
36	0.0001	0.0000	0.0002	0.0001	0.0001	0.0002	0.0001	0.0000	0.0001	0.0003
37	0.0659	0.0194	0.0798	0.0440	0.0366	0.0376	0.0293	0.0286	0.0352	0.0724
38	0.1246	0.1265	0.0771	0.0747	0.1286	0.1423	0.0766	0.0822	0.0593	0.0710
39	0.0003	0.0011	0.0000	0.0001	0.0000	0.0008	0.0041	0.0000	0.0051	0.0047
40	0.0049	0.0032	0.0109	0.0021	0.0070	0.0157	0.0084	0.0080	0.0016	0.0036

MATRIX A_{FB} (Continued)

	31	32	33	34	35	36	37	38	39	40
1	0.0035	0.0025	0.0004	0.0010	0.0051	0.0003	0.0000	0.00[illegible]	0.006[illegible]	0.0024
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0009	0.0438	0.0205	0.0218	0.1563	0.0656	0.0023	0.0011	0.0002	0.0005
7	0.0012	0.0018	0.0009	0.0007	0.0010	0.0011	0.0012	0.0012	0.0009	0.0006
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0028	0.0003	0.0025	0.0001	0.0006	0.0003	0.0020	0.0014	0.0020	0.0014
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
14	0.0000	0.0005	0.0004	0.0003	0.0016	0.0015	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FB} (Continued)

	31	32	33	34	35	36	37	38	39	40
21	0.0228	0.0002	0.0000	0.0021	0.0000	0.0006	0.0009	0.0102	0.0000	0.0374
22	0.0002	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0003	0.0000	0.0001
23	0.0044	0.0082	0.0067	0.0032	0.0156	0.0019	0.0033	0.0366	0.0030	0.0021
24	0.0003	0.0001	0.0000	0.0000	0.0009	0.0157	0.0056	0.0122	0.0000	0.0004
25	0.0118	0.0039	0.0017	0.0030	0.0030	0.0016	0.0123	0.0456	0.0030	0.0202
26	0.0403	0.0048	0.0090	0.0122	0.0102	0.0039	0.0052	0.0131	0.1156	0.0595
27	0.0044	0.0006	0.0022	0.0001	0.0036	0.0002	0.0008	0.0006	0.0103	0.0017
28	0.0060	0.0001	0.0001	0.0001	0.0006	0.0000	0.0010	0.0010	0.0029	0.0021
29	0.1047	0.0161	0.0017	0.0001	0.0136	0.0001	0.0002	0.0003	0.0644	0.0129
30	0.0442	0.0013	0.0000	0.0000	0.0128	0.0000	0.0003	0.0002	0.0517	0.0116
31	0.0000	0.0281	0.0100	0.0035	0.1173	0.0372	0.0126	0.0245	0.2089	0.2487
32	0.0067	0.0000	0.0008	0.0094	0.0038	0.0009	0.0006	0.0044	0.0118	0.0046
33	0.0000	0.0064	0.0000	0.0000	0.0000	0.0000	0.0000	0.0041	0.0000	0.0000
34	0.0071	0.0062	0.0048	0.0000	0.0307	0.0058	0.0070	0.0046	0.0087	0.0071
35	0.0003	0.0006	0.0004	0.0008	0.0000	0.0011	0.0002	0.0003	0.0002	0.0002
36	0.0002	0.0029	0.0000	0.0000	0.0002	0.0000	0.0001	0.0119	0.0010	0.0002
37	0.0383	0.0118	0.0218	0.0539	0.0218	0.0241	0.0000	0.0259	0.0265	0.0346
38	0.0855	0.1024	0.0565	0.1244	0.2165	0.1177	0.1828	0.0000	0.0557	0.0728
39	0.0082	0.0000	0.0010	0.0036	0.0000	0.0000	0.0006	0.0048	0.0000	0.0011
40	0.0149	0.0034	0.0013	0.0018	0.0143	0.0013	0.0032	0.0091	0.0228	0.0000

MATRIX A_{FC}

	1	2	3	4	5	6	7	8	9	10
1	0.0008	0.0000	0.0000	1.6200	1.6974	0.0001	0.0004	2.1007	2.5001	0.0000
2	0.0000	0.0741	0.0000	0.0000	0.0000	1.0002	1.0002	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0012	0.0006	0.0000	0.0000	0.0000	0.0623	0.0008	0.0000	0.2000	0.0000
7	0.0001	0.0189	0.0064	0.0332	0.0000	0.0418	0.0334	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1454	0.0000	0.0000
9	0.0001	0.0008	0.0000	0.0000	0.0000	0.0022	0.0003	0.0000	0.0880	0.0000
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0880
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0004	0.0001	0.0000	0.0000	0.0000	0.0010	0.0000	0.0009
16	0.0000	0.0000	0.0032	0.0000	0.0645	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0004
18	0.0000	0.0000	0.0000	0.0011	0.0002	0.0000	0.0000	0.0131	0.0000	0.0109
19	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000	0.0000	0.0009	0.0000	0.0004
20	0.0000	0.0000	0.0007	0.0025	0.0022	0.0000	0.0000	0.0043	0.0000	0.0036

MATRIX A_{FC} (Continued)

	1	2	3	4	5	6	7	8	9	10
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0002	0.0000	0.0000	0.0175	0.0000	0.0001	0.0000	0.0003	0.0003	0.0003
23	0.0016	0.0119	0.0048	0.0235	0.0121	0.0155	0.0144	0.1893	0.2294	0.1259
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0000	0.0004	0.0004	0.0004
25	0.0000	0.0000	0.0000	0.0021	0.0002	0.0031	0.0004	0.0132	0.0110	0.0115
26	0.0052	0.0052	0.0005	0.0063	0.0435	0.0325	0.0000	0.0126	0.0146	0.7604
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0004
28	0.0008	0.0021	0.0007	0.0001	0.0000	0.0002	0.0000	0.0003	0.0002	0.0002
29	0.0029	0.0030	0.0000	0.0002	0.0000	0.0001	0.0000	0.0055	0.0052	0.0052
30	0.0005	0.0000	0.0000	0.0004	0.0000	0.0018	0.0000	0.0033	0.0026	0.0026
31	0.0155	0.0142	0.0190	0.0016	0.0262	0.0091	0.0000	0.0351	0.0316	0.0552
32	0.0011	0.0006	0.0001	0.0019	0.0007	0.0017	0.0001	0.0216	0.1335	0.0271
33	0.0000	0.0000	0.0000	0.0010	0.0004	0.0010	0.0000	0.0000	0.0000	0.0000
34	0.0007	0.0005	0.0001	0.0012	0.0003	0.0066	0.0001	0.0011	0.0441	0.0035
35	0.0001	0.0001	0.0001	0.0013	0.0000	0.0105	0.0000	0.0022	0.0123	0.0027
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001
37	0.0046	0.0033	0.0016	0.0024	0.0057	0.0084	0.0016	0.0603	0.0441	0.0557
38	0.0198	0.0725	0.0064	0.0895	0.0976	0.1065	0.0402	0.2070	0.1808	0.2074
39	0.0000	0.0000	0.0000	0.0000	0.0009	0.0001	0.0000	0.0014	0.0013	0.0013
40	0.0004	0.0001	0.0000	0.0003	0.0000	0.0001	0.0002	0.0025	0.0024	0.0033

MATRIX A_{FC} (Continued)

	11	12	13	14	15	16	17	18	19	20
1	0.0000	0.0766	1.4925	0.0243	0.0000	0.2131	0.0000	0.1882	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.7344	5.0000	0.3114	0.0779	0.5827	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.2499	0.0000	0.9718	1.1915	0.5699	0.0491	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.1639	0.0115	0.2903	0.8113
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0013	0.0001	0.0023	0.0063
11	0.0900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0882	0.0000	0.0000	0.0000	0.0031	0.0368	0.0026	0.0653	0.1824
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.0010	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0006	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0131	0.0109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0009	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0043	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FC} (Continued)

	11	12	13	14	15	16	17	18	19	20
21	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.1277	0.1582	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0119	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.8617	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0052	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0026	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0616	0.0318	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0284	0.0199	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0039	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0028	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
37	0.0583	0.0437	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
38	0.2185	0.1757	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
39	0.0013	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	0.0034	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FC} (Continued)

	21	22	23	24	25	26	27	28	29	30
1	0.0006	0.0034	0.0000	0.0015	0.0157	0.0454	0.0056	0.0347	0.0052	0.0464
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0024	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0270	0.0121	0.0034	0.0046	0.0056	0.0043	0.0169	0.0193	0.0117	0.0017
7	0.0011	0.0374	0.0002	0.0022	0.0023	0.0009	0.0168	0.0063	0.0052	0.0096
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0017	0.0086	0.0001	0.0015	0.0018	0.0032	0.0056	0.0067	0.0027	0.0129
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0650	0.0006
14	0.0002	0.0000	0.0071	0.0000	0.0001	0.0346	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FC} (Continued)

	21	22	23	24	25	26	27	28	29	30
21	0.0000	0.0000	0.0025	0.3733	0.0000	0.0027	0.0000	0.0000	0.0000	0.0000
22	0.0031	0.0000	0.0090	0.0002	0.0026	0.0201	0.0135	0.0898	0.0693	0.1099
23	0.0139	0.0127	0.0000	0.0035	0.0071	0.0073	0.0092	0.0103	0.0123	0.0072
24	0.0856	0.0000	0.0000	0.0000	0.0037	0.0132	0.0000	0.0006	0.0000	0.0009
25	0.0037	0.0053	0.0029	0.0416	0.0000	0.0354	0.0660	0.0278	0.0013	0.0048
26	0.1226	0.0452	0.0623	0.0249	0.0601	0.0000	0.0589	0.0454	0.0185	0.0425
27	0.0001	0.0000	0.0025	0.0135	0.0001	0.0055	0.0000	0.0003	0.0001	0.0001
28	0.0006	0.0244	0.0667	0.0000	0.0010	0.0047	0.0185	0.0000	0.0047	0.0041
29	0.0000	0.0301	0.0170	0.0002	0.0014	0.0039	0.0000	0.0110	0.0000	0.0351
30	0.0001	0.0023	0.0020	0.0001	0.0020	0.0089	0.0082	0.0027	0.0362	0.0000
31	0.0167	0.0546	0.1898	0.0377	0.0742	0.0561	0.0217	0.0512	0.0924	0.1029
32	0.0080	0.0072	0.0091	0.0107	0.0188	0.0148	0.0167	0.0244	0.0328	0.0259
33	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0189	0.0037	0.0178	0.0253	0.0143	0.0130	0.0130	0.0451	0.0194	0.0193
35	0.0013	0.0007	0.0006	0.0015	0.0008	0.0018	0.0004	0.0028	0.0053	0.0010
36	0.0001	0.0000	0.0002	0.0001	0.0001	0.0002	0.0001	0.0000	0.0001	0.0003
37	0.0659	0.0194	0.0798	0.0440	0.0386	0.0376	0.0293	0.0286	0.0352	0.0724
38	0.1246	0.1265	0.0771	0.0747	0.1286	0.1423	0.0766	0.0822	0.0593	0.0710
39	0.0003	0.0011	0.0000	0.0001	0.0000	0.0008	0.0041	0.0000	0.0051	0.0047
40	0.0049	0.0032	0.0109	0.0021	0.0070	0.0157	0.0084	0.0080	0.0016	0.0036

MATRIX A_{FC} (Continued)

	31	32	33	34	35	36	37	38	39	40
1	0.0045	0.0025	0.0004	0.0010	0.0031	0.0003	0.0000	0.0000	0.0078	0.0031
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0011	0.0465	0.0258	0.0253	0.1563	0.0729	0.0029	0.0014	0.0003	0.0006
7	0.0016	0.0018	0.0009	0.0007	0.0010	0.0011	0.0005	0.0006	0.0011	0.0008
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0031	0.0003	0.0025	0.0001	0.0006	0.0003	0.0024	0.0018	0.0023	0.0015
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
14	0.0000	0.0005	0.0004	0.0003	0.0016	0.0015	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FC} (Continued)

	31	32	33	34	35	36	37	38	39	40
21	0.0152	0.0002	0.0000	0.0022	0.0000	0.0007	0.0009	0.0102	0.0000	0.0340
22	0.0002	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0002	0.0000	0.0001
23	0.0044	0.0909	0.0084	0.0033	0.0156	0.0021	0.0033	0.0366	0.0034	0.0021
24	0.0003	0.0001	0.0000	0.0000	0.0009	0.0174	0.0056	0.0122	0.0000	0.0004
25	0.0118	0.0040	0.0022	0.0031	0.0030	0.0018	0.0123	0.0456	0.0034	0.0225
26	0.0403	0.0049	0.0113	0.0126	0.0102	0.0033	0.0082	0.0131	0.0801	0.0661
27	0.0044	0.0006	0.0027	0.0001	0.0036	0.0002	0.0008	0.0006	0.0114	0.0017
28	0.0060	0.0001	0.0002	0.0001	0.0006	0.0000	0.0010	0.0010	0.0032	0.0021
29	0.1085	0.0166	0.0021	0.0001	0.0136	0.0001	0.0002	0.0003	0.0875	0.0143
30	0.0485	0.0014	0.0000	0.0000	0.0128	0.0000	0.0003	0.0002	0.0377	0.0129
31	0.0000	0.0290	0.0125	0.0037	0.1173	0.0411	0.0126	0.0245	0.2321	0.2487
32	0.0062	0.0000	0.0009	0.0090	0.0035	0.0009	0.0005	0.0041	0.0122	0.0042
33	0.0000	0.0066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0041	0.0000	0.0000
34	0.0081	0.0073	0.0068	0.0000	0.0351	0.0074	0.0060	0.0053	0.0110	0.0682
35	0.0003	0.0006	0.0005	0.0009	0.0000	0.0012	0.0002	0.0003	0.0002	0.0002
36	0.0002	0.0030	0.0000	0.0000	0.0002	0.0000	0.0001	0.0119	0.0011	0.0002
37	0.0383	0.0122	0.0272	0.0558	0.0218	0.0267	0.0000	0.0259	0.0295	0.0346
38	0.0855	0.1056	0.0706	0.1267	0.2165	0.1303	0.1828	0.0000	0.0615	0.0728
39	0.0082	0.0000	0.0012	0.0037	0.0000	0.0000	0.0006	0.0048	0.0000	0.0011
40	0.0149	0.0035	0.0016	0.0019	0.0143	0.0014	0.0032	0.0091	0.0253	0.0000

MATRIX A_{FD}

	1	2	3	4	5	6	7	8	9	10
1	0.0008	0.0000	0.0000	1.6200	1.6970	0.0010	0.0004	2.1047	2.5001	0.0000
2	0.0000	0.0741	0.0000	0.0000	0.0000	1.0002	1.0002	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0012	0.0006	0.0000	0.0000	0.0000	0.0623	0.0008	0.0000	0.2000	0.0000
7	0.0001	0.0189	0.0064	0.0332	0.0000	0.0418	0.0334	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1484	0.0000	0.0000
9	0.0001	0.0008	0.0000	0.0000	0.0000	0.0022	0.0003	0.0000	0.0860	0.0000
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0880
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0004	0.0001	0.0000	0.0000	0.0000	0.0010	0.0000	0.0009
16	0.0000	0.0000	0.0032	0.0000	0.0645	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0004
18	0.0000	0.0000	0.0000	0.0011	0.0002	0.0000	0.0000	0.0131	0.0000	0.0109
19	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000	0.0000	0.0059	0.0000	0.0074
20	0.0000	0.0000	0.0007	0.0025	0.0022	0.0000	0.0000	0.0043	0.0000	0.0036

MATRIX A_{FD} (Continued)

	1	2	3	4	5	6	7	8	9	10
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0002	0.0000	0.0000	0.0175	0.0000	0.0001	0.0000	0.0003	0.0003	0.0003
23	0.0016	0.0119	0.0048	0.0235	0.0121	0.0155	0.0144	0.1893	0.2294	0.1259
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0000	0.0004	0.0004	0.0004
25	0.0000	0.0000	0.0000	0.0021	0.0002	0.0031	0.0004	0.0132	0.0110	0.0115
26	0.0052	0.0052	0.0005	0.0063	0.0485	0.0325	0.0000	0.0126	0.0146	0.7604
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0004
28	0.0008	0.0021	0.0007	0.0001	0.0000	0.0002	0.0000	0.0003	0.0002	0.0002
29	0.0029	0.0030	0.0000	0.0002	0.0000	0.0001	0.0000	0.0055	0.0052	0.0052
30	0.0005	0.0000	0.0000	0.0004	0.0000	0.0018	0.0000	0.0033	0.0026	0.0026
31	0.0155	0.0142	0.0190	0.0016	0.0262	0.0091	0.0000	0.0351	0.0316	0.0552
32	0.0010	0.0005	0.0001	0.0017	0.0006	0.0015	0.0001	0.0196	0.1216	0.0247
33	0.0000	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0008	0.0006	0.0001	0.0014	0.0009	0.0076	0.0001	0.0013	0.0505	0.0040
35	0.0001	0.0001	0.0001	0.0013	0.0000	0.0105	0.0000	0.0022	0.0123	0.0027
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001
37	0.0046	0.0033	0.0018	0.0024	0.0057	0.0084	0.0016	0.0613	0.0441	0.0557
38	0.0198	0.0725	0.0064	0.0895	0.0976	0.1065	0.0402	0.2070	0.1808	0.2074
39	0.0000	0.0000	0.0000	0.0000	0.0009	0.0001	0.0000	0.0014	0.0013	0.0013
40	0.0004	0.0001	0.0000	0.0003	0.0000	0.0001	0.0002	0.0025	0.0024	0.0033

MATRIX A_{FD} (Continued)

	11	12	13	14	15	16	17	18	19	20
1	0.0000	0.0000	1.4925	0.0243	0.0000	0.2130	0.0000	0.1867	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.7344	5.0000	0.3114	0.0779	0.5827	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.2499	0.0000	0.9718	1.1915	0.5699	0.0491	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.1639	0.0115	0.2903	0.8113
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0013	0.0001	0.0023	0.0023
11	0.0900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0882	0.0000	0.0000	0.0000	0.0031	0.0368	0.0026	0.0653	0.1824
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.0010	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0006	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0131	0.0109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0009	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0043	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FD} (Continued)

	11	12	13	14	15	16	17	18	19	20
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.1277	0.1582	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0119	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.8617	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0052	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0026	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0616	0.0318	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0259	0.0181	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0045	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0028	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
37	0.0583	0.0437	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
38	0.2185	0.1757	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
39	0.0013	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	0.0034	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FD} (Continued)

	21	22	23	24	25	26	27	28	29	30
1	0.0006	0.0034	0.0000	0.0016	0.0167	0.0399	0.0056	0.0420	0.0054	0.0478
2	0.0004	0.0000	0.0000	0.0000	0.0000	0.0024	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0273	0.0121	0.0034	0.0060	0.0065	0.0056	0.0160	0.0257	0.0129	0.0018
7	0.0011	0.0374	0.0002	0.0022	0.0024	0.0009	0.0168	0.0089	0.0056	0.0105
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0017	0.0086	0.0001	0.0016	0.0021	0.0034	0.0056	0.0077	0.0027	0.0132
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0050	0.0000
14	0.0002	0.0000	0.0078	0.0000	0.0001	0.0346	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FD} (Continued)

	21	22	23	24	25	26	27	28	29	30
21	0.0000	0.0000	0.0025	0.3733	0.0040	0.0027	0.0000	0.0000	0.0000	0.0000
22	0.0031	0.0000	0.0090	0.0002	0.0026	0.0201	0.0135	0.0898	0.0693	0.1099
23	0.0139	0.0127	0.0000	0.0035	0.0071	0.0073	0.0092	0.0103	0.0123	0.0072
24	0.0856	0.0000	0.0000	0.0000	0.0037	0.0132	0.0000	0.0006	0.0000	0.0006
25	0.0037	0.0053	0.0029	0.0467	0.0000	0.0354	0.0660	0.0278	0.0013	0.0045
26	0.1226	0.0452	0.0623	0.0299	0.0601	0.0000	0.0589	0.0454	0.0185	0.0429
27	0.0001	0.0000	0.0025	0.0152	0.0001	0.0055	0.0000	0.0003	0.0001	0.0001
28	0.0006	0.0244	0.0667	0.0000	0.0010	0.0047	0.0185	0.0000	0.0047	0.0041
29	0.0000	0.0301	0.0170	0.0002	0.0014	0.0039	0.0000	0.0110	0.0000	0.0351
30	0.0001	0.0023	0.0020	0.0001	0.0020	0.0089	0.0082	0.0027	0.0362	0.0000
31	0.0167	0.0546	0.1998	0.0422	0.0742	0.0561	0.0217	0.0512	0.0924	0.1029
32	0.0073	0.0066	0.0083	0.0098	0.0171	0.0135	0.0152	0.0222	0.0298	0.0236
33	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0216	0.0042	0.0204	0.0289	0.0164	0.0148	0.0148	0.0516	0.0211	0.0220
35	0.0013	0.0007	0.0006	0.0015	0.0008	0.0018	0.0004	0.0028	0.0053	0.0010
36	0.0001	0.0000	0.0002	0.0001	0.0001	0.0002	0.0001	0.0000	0.0001	0.0003
37	0.0659	0.0194	0.0798	0.0440	0.0386	0.0376	0.0293	0.0286	0.0352	0.0724
38	0.1246	0.1265	0.0771	0.0747	0.1286	0.1423	0.0766	0.0822	0.0593	0.0710
39	0.0003	0.0011	0.0000	0.0001	0.0000	0.0008	0.0041	0.0000	0.0051	0.0047
40	0.0049	0.0032	0.0109	0.0021	0.0070	0.0157	0.0084	0.0080	0.0016	0.0036

MATRIX A_{FD} (Continued)

	31	32	33	34	35	36	37	38	39	40
1	0.0051	0.0025	0.0004	0.0010	0.0031	0.0003	0.0000	0.0000	0.0087	0.0035
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0011	0.0492	0.0341	0.0266	0.1563	0.1166	0.0036	0.0012	0.0003	0.0006
7	0.0018	0.0018	0.0009	0.0007	0.0010	0.0011	0.0007	0.0007	0.0012	0.0009
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0032	0.0003	0.0025	0.0001	0.0006	0.0003	0.0028	0.0020	0.0024	0.0016
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
14	0.0000	0.0005	0.0004	0.0003	0.0016	0.0015	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

MATRIX A_{FD} (Continued)

	31	32	33	34	35	36	37	38	39	40
21	0.0076	0.0002	0.0000	0.0022	0.0000	0.0008	0.0009	0.0102	0.0000	0.0306
22	0.0002	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0002	0.0000	0.0001
23	0.0044	0.0936	0.0112	0.0034	0.0156	0.0025	0.0033	0.0366	0.0037	0.0021
24	0.0003	0.0002	0.0000	0.0000	0.0009	0.0209	0.0056	0.0122	0.0000	0.0004
25	0.0118	0.0042	0.0029	0.0032	0.0030	0.0022	0.0123	0.0456	0.0037	0.0247
26	0.0403	0.0051	0.0151	0.0130	0.0102	0.0040	0.0082	0.0131	0.0412	0.0728
27	0.0044	0.0006	0.0036	0.0001	0.0036	0.0002	0.0008	0.0006	0.0126	0.0017
28	0.0060	0.0001	0.0002	0.0001	0.0006	0.0000	0.0010	0.0015	0.0035	0.0021
29	0.1123	0.0171	0.0029	0.0001	0.0136	0.0001	0.0002	0.0003	0.1106	0.0158
30	0.0518	0.0014	0.0000	0.0000	0.0128	0.0000	0.0003	0.0002	0.0240	0.0141
31	0.0003	0.0299	0.0166	0.0038	0.1173	0.0496	0.0126	0.0245	0.2553	0.2487
32	0.0057	0.0000	0.0011	0.0085	0.0032	0.0010	0.0005	0.0037	0.0122	0.0039
33	0.0000	0.0068	0.0000	0.0000	0.0000	0.0000	0.0000	0.0041	0.0000	0.0000
34	0.0093	0.0086	0.0104	0.0000	0.0402	0.0102	0.0091	0.0060	0.0139	0.0094
35	0.0003	0.0007	0.0007	0.0009	0.0008	0.0015	0.0002	0.0013	0.0003	0.0002
36	0.0002	0.0031	0.0000	0.0000	0.0002	0.0000	0.0001	0.0119	0.0012	0.0002
37	0.0383	0.0126	0.0363	0.0576	0.0218	0.0321	0.0000	0.0259	0.0324	0.0344
38	0.0855	0.1068	0.0942	0.1330	0.2165	0.1570	0.1828	0.0000	0.0680	0.0728
39	0.0082	0.0000	0.0016	0.0038	0.0000	0.0000	0.0006	0.0049	0.0000	0.0011
40	0.0149	0.0036	0.0022	0.0019	0.0143	0.0017	0.0032	0.0091	0.0279	0.0000

APPENDIX C

1967 A Matrix

1967 A MATRIX

	1	2	3	4	5	6	7	8	9	10
1	0.0008	0.0000	0.0000	1.6200	1.6970	0.0010	0.0008	2.1087	2.1247	0.0000
2	0.0005	0.0247	0.0000	0.0000	0.0000	1.0002	1.0002	0.0000	0.0000	0.0000
3	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0012	0.0006	0.0000	0.0000	0.0000	0.0623	0.0008	0.0003	0.2789	0.0000
7	0.0001	0.0189	0.0064	0.0332	0.0000	0.0418	0.0334	0.0000	0.8455	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1484	0.0000	0.0000
9	0.0001	0.0008	0.0000	0.0000	0.0000	0.0022	0.0003	0.0009	0.0880	0.0000
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0880
11	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0007
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0004	0.0001	0.0000	0.0000	0.0000	0.0010	0.0000	0.0009
16	0.0000	0.0000	0.0032	0.0000	0.0645	0.0000	0.0000	0.0002	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0000	0.0004
18	0.0000	0.0000	0.0000	0.0011	0.0002	0.0000	0.0000	0.0131	0.0000	0.0109
19	0.0000	0.0000	0.0000	0.0002	0.0001	0.0000	0.0000	0.0009	0.0000	[illegible]
20	0.0000	0.0000	0.0007	0.0025	0.0022	0.0000	0.0000	0.0043	0.0000	0.0036

1967 A MATRIX (Continued)

	1	2	3	4	5	6	7	8	9	10
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0002	0.0000	0.0000	0.0175	0.0000	0.0001	0.0000	0.0003	0.0003	0.0003
23	0.0016	0.0119	0.0048	0.0235	0.0121	0.0155	0.0144	0.1893	0.2294	0.1259
24	0.0000	0.0000	0.0000	0.0000	0.0000	0.0013	0.0000	0.0004	0.0004	0.0004
25	0.0000	0.0000	0.0000	0.0021	0.0002	0.0031	0.0004	0.0132	0.0110	0.0115
26	0.0052	0.0052	0.0005	0.0063	0.0485	0.0325	0.0000	0.0126	0.0146	0.7604
27	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0004	0.0004	0.0004
28	0.0008	0.0021	0.0007	0.0001	0.0000	0.0002	0.0000	0.0003	0.0002	0.0002
29	0.0029	0.0030	0.0000	0.0002	0.0000	0.0001	0.0000	0.0055	0.0052	0.0052
30	0.0005	0.0000	0.0000	0.0004	0.0000	0.0016	0.0000	0.0033	0.0026	0.0026
31	0.0155	0.0142	0.0190	0.0016	0.0262	0.0091	0.0000	0.0351	0.0316	0.0552
32	0.0011	0.0006	0.0001	0.0018	0.0007	0.0017	0.0001	0.0213	0.1322	0.0268
33	0.0007	0.0000	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0006	0.0005	0.0001	0.0011	0.0007	0.0056	0.0001	0.0010	0.0374	0.0030
35	0.0002	0.0001	0.0001	0.0018	0.0000	0.0146	0.0000	0.0030	0.0171	0.0038
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001
37	0.0046	0.0033	0.0018	0.0024	0.0057	0.0084	0.0016	0.0603	0.0441	0.0557
38	0.0198	0.0725	0.0064	0.0895	0.0976	0.1065	0.0402	0.2070	0.1806	0.2074
39	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0014	0.0013	0.0013
40	0.0004	0.0001	0.0000	0.0003	0.0000	0.0001	0.0002	0.0025	0.0024	0.0033

1967 A MATRIX (Continued)

	11	12	13	14	15	16	17	18	19	20
1	0.0000	0.0000	1.4925	0.0243	0.0000	0.2130	0.0000	0.1882	0.0000	0.0000
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000	0.7344	5.0000	0.3114	0.0779	0.5827	0.0000	0.0000
7	0.0000	0.0000	0.0000	0.2499	0.0000	0.9718	1.1915	0.5699	0.0491	0.0000
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000	0.0000	0.0000	0.0140	0.1639	0.0115	0.2903	0.6113
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0013	0.0001	0.0023	0.0063
11	0.0900	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0005	0.0582	0.0000	0.0000	0.0000	0.0031	0.0368	0.0026	0.0653	0.1824
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
15	0.0010	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0006	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0131	0.0109	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0009	0.0008	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0043	0.0036	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

1967 A MATRIX (Continued)

	11	12	13	14	15	16	17	18	19	20
21	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.0003	0.0003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.1277	0.1582	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.0119	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
26	0.8617	0.0145	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
27	0.0004	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
28	0.0002	0.0002	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
29	0.0052	0.0052	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.0026	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
31	0.0616	0.0318	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
32	0.0231	0.0197	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
33	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0033	0.0009	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.0039	0.0029	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
36	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
37	0.0583	0.0437	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
38	0.2185	0.1757	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
39	0.0013	0.0013	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	0.0034	0.0024	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

1967 A MATRIX (Continued)

	21	22	23	24	25	26	27	28	29	30
1	0.0006	0.0034	0.0000	0.0027	0.0115	0.0142	0.0024	0.0327	0.0057	0.0152
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0024	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0235	0.0121	0.0034	0.0026	0.0104	0.0046	0.0040	0.0123	0.0101	0.0040
7	0.0007	0.0374	0.0002	0.0062	0.0138	0.0303	0.0582	0.0525	0.0384	0.0291
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0008	0.0086	0.0001	0.0013	0.0034	0.0031	0.0050	0.0052	0.0074	0.0165
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0650	0.0016
14	0.0002	0.0000	0.0089	0.0000	0.0001	0.0306	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

1967 A MATRIX (Continued)

	21	22	23	24	25	26	27	28	29	30
21	0.0000	0.0000	0.0025	0.3733	0.0000	0.0027	0.0000	0.0000	0.0000	0.0000
22	0.0031	0.0000	0.0090	0.0002	0.0026	0.0201	0.0135	0.0898	0.0693	0.1099
23	0.0139	0.0127	0.0000	0.0035	0.0071	0.0073	0.0092	0.0103	0.0123	0.0072
24	0.0856	0.0000	0.0000	0.0000	0.0037	0.0132	0.0000	0.0006	0.0000	0.0007
25	0.0037	0.0053	0.0029	0.0425	0.0000	0.0354	0.0660	0.0278	0.0013	0.0049
26	0.0613	0.0452	0.0312	0.0200	0.0601	0.0000	0.0589	0.0454	0.0185	0.0425
27	0.0001	0.0000	0.0025	0.0138	0.0001	0.0055	0.0000	0.0003	0.0001	0.0001
28	0.0006	0.0244	0.0667	0.0000	0.0010	0.0047	0.0165	0.0015	0.0047	0.0041
29	0.0000	0.0301	0.0170	0.0002	0.0014	0.0039	0.0000	0.0110	0.0000	0.0351
30	0.0001	0.0023	0.0020	0.0001	0.0020	0.0089	0.0082	0.0027	0.0362	0.0000
31	0.0167	0.0546	0.1998	0.0384	0.0742	0.0561	0.0217	0.0512	0.0924	0.1029
32	0.0079	0.0072	0.0090	0.0106	0.0186	0.0146	0.0165	0.0241	0.0324	0.0257
33	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000
34	0.0160	0.0031	0.0151	0.0214	0.0122	0.0110	0.0110	0.0382	0.0156	0.0163
35	0.0017	0.0010	0.0009	0.0021	0.0011	0.0025	0.0006	0.0039	0.0074	0.0014
36	0.0001	0.0000	0.0002	0.0001	0.0001	0.0002	0.0001	0.0005	0.0001	0.0003
37	0.0659	0.0194	0.0798	0.0440	0.0386	0.0376	0.0293	0.0286	0.0352	0.0724
38	0.1246	0.1265	0.0771	0.0747	0.1286	0.1423	0.0766	0.0822	0.0593	0.0715
39	0.0003	0.0011	0.0000	0.0001	0.0000	0.0008	0.0041	0.0000	0.0051	0.0047
40	0.0049	0.0032	0.0109	0.0021	0.0070	0.0157	0.0084	0.0080	0.0016	0.0036

1967 A MATRIX (Continued)

	31	32	33	34	35	36	37	38	39	40
1	0.0015	0.0025	0.0004	0.0010	0.0031	0.0003	0.0001	0.0005	0.0026	0.0010
2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	0.0025	0.0456	0.0379	0.0266	0.1563	0.1457	0.0095	0.0048	0.0006	0.0013
7	0.0038	0.0018	0.0009	0.0007	0.0010	0.0011	0.0044	0.0046	0.0026	0.0019
8	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9	0.0019	0.0003	0.0025	0.0001	0.0006	0.0003	0.0019	0.0014	0.0014	0.0010
10	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000
14	0.0000	0.0005	0.0004	0.0003	0.0016	0.0015	0.0000	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
17	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
18	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

1967 A MATRIX (Continued)

	31	32	33	34	35	36	37	38	39	40
21	0.0152	0.0002	0.0000	0.0024	0.0000	0.0008	0.0009	0.0102	0.0000	0.0340
22	0.0002	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0002	0.0000	0.0001
23	0.0044	0.0909	0.0112	0.0037	0.0156	0.0025	0.0033	0.0366	0.0034	0.0021
24	0.0003	0.0001	0.0000	0.0000	0.0009	0.0209	0.0056	0.0122	0.0000	0.0004
25	0.0118	0.0040	0.0029	0.0034	0.0030	0.0022	0.0123	0.0456	0.0034	0.0225
26	0.0403	0.0049	0.0151	0.0140	0.0102	0.0040	0.0082	0.0131	0.0374	0.0661
27	0.0044	0.0006	0.0036	0.0001	0.0036	0.0002	0.0008	0.0006	0.0114	0.0017
28	0.0060	0.0001	0.0002	0.0001	0.0006	0.0000	0.0010	0.0016	0.0032	0.0021
29	0.1085	0.0166	0.0029	0.0001	0.0136	0.0001	0.0002	0.0003	0.1006	0.0143
30	0.0480	0.0014	0.0000	0.0000	0.0128	0.0000	0.0003	0.0002	0.0218	0.0129
31	0.0003	0.0290	0.0166	0.0041	0.1173	0.0496	0.0126	0.0245	0.2321	0.2487
32	0.0062	0.0000	0.0012	0.0099	0.0034	0.0011	0.0005	0.0041	0.0121	0.0042
33	0.0000	0.0066	0.0000	0.0000	0.0000	0.0000	0.0000	0.0041	0.0000	0.0000
34	0.0069	0.0062	0.0077	0.0000	0.0298	0.0076	0.0067	0.0045	0.0093	0.0069
35	0.0004	0.0009	0.0010	0.0014	0.0000	0.0020	0.0003	0.0005	0.0003	0.0003
36	0.0002	0.0030	0.0000	0.0000	0.0002	0.0000	0.0001	0.0119	0.0011	0.0002
37	0.0383	0.0122	0.0363	0.0620	0.0218	0.0321	0.0000	0.0259	0.0295	0.0346
38	0.0855	0.1056	0.0942	0.1430	0.2165	0.1570	0.1828	0.0000	0.0619	0.0728
39	0.0082	0.0000	0.0016	0.0041	0.0000	0.0000	0.0006	0.0048	0.0000	0.0011
40	0.0149	0.0035	0.0022	0.0021	0.0143	0.0017	0.0032	0.0091	0.0253	0.0000

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